HYDRAULIC REPORT

ELGIN O'HARE – WEST BYPASS
P-91-443-06

I-294 OVER SILVER CREEK
FRANKLIN PARK, COOK COUNTY

Prepared For:

Illinois Department of Transportation
201 West Center Court
Schaumburg, IL 60196-1096

Prepared By:

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CBBEL Project No. 07-0404

OCTOBER 2012

CH2MHILL®

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Illinois Department of Transportation

HYDRAULIC REPORT OUTLINE (HRO)

In order to facilitate a more efficient and timely approval of Hydraulic Reports, a "Hydraulic Report Outline" shall be prepared and submitted with each hydraulic project. This Outline shall be submitted to the District Hydraulic Engineer along with the Hydraulic Report to aid in review of the report.

If any deviations from the procedural steps below are necessary, they must be documented in the outline. Hydraulic Reports prepared by a Qualified District Hydraulic Engineer or under his supervision, are exempt from the HRO requirement. To facilitate Pump Station Hydraulic Report reviews, the Checklist and Data Sheets from the IDOT Drainage Manual, 13-303 and 13-304, will be used. The Data Sheets must be signed by the consultant's QA/QC person or the District Hydraulic Engineer.

1. SN 16-2746 (Existing); SN ___-____ (Proposed)
   Route/Stream: I-294 over Silver Creek
   County: Cook

2. Prepared By: ☒ Consultant: Christopher B. Burke Engr., Ltd.
   ☐ District _____

3. Chapter 2 of the IDOT Drainage ☒ Yes ☐ No
   If no, explain _____
   Completed checklist (2-701.02) must be attached.

4. Design Considerations:
   a. Backwater limitations due to:
      IDNR Individual or Floodway Permit ☒ Yes ☐ No
      Sensitive Flood Receptor(s) ☒ Yes ☐ No
   b. Does proposed average design velocity through the structure exceed natural channel velocities? ☐ Yes ☒ No
   c. Is the clearance policy met? ☐ Yes ☐ No
   d. Is the freeboard policy met? ☒ Yes ☐ No

5. Project scope (check all that apply):
   a. ☐ Complete replacement.
   b. ☐ Superstructure replacement.
   c. ☐ Superstructure replacement and/or widening; Length of pier extension in the water, upstream _____ft., downstream _____ft.
   d. ☐ Bridge ☒ Culvert
   e. ☐ New alignment
   f. Work planned below Q100 HWE: ☐ Yes ☐ No

6. Hydrology: ☐ USGS ☒ FIS ☐ Other _____
   Gage data utilized? ☐ Yes ☒ No

7. WIT: Attached copy of all completed WIT(s) ☒ Yes ☐ No _____

8. Modeling:
   a. ☒ HEC RAS ☐ WSPRO ☐ Other _____
   b. N-values estimated according to Chapter 5 of Drainage Manual? ☒ Yes ☐ No
   c. Source of starting WSE FIS Flood Elevations
   d. Non-IDOT encroachments in survey? ☒ Yes ☐ No
      If yes, are they accounted for? ☒ Yes ☐ No
   e. Tail water controls(s)? ☐ Yes ☒ No
      If yes, list: _____
      Properly addressed? ☐ Yes ☐ No
   f. Expansion/Contraction cones addressed per Chapter 7 of Drainage Manual? ☒ Yes ☐ No
      If N/A, explain: _____

9. IDNR-OWR Permit: Drainage Area 1.9 sq. ☐ Rural; ☒ Urbanizing;
   Public Water or within Public Water boundaries ☐ Yes ☒ No
   Indicate Permit Type Required:
   a. Individual ☐
   b. Statewide #2 ☐
   c. Statewide #12 ☐
   d. Floodway ☒
   e. Other: _____
   f. None: ☐

10. Sensitive flood receptors ☒ Yes ☐ No
    Give type, elevations and locations: Residential/Commericial, Elevations unknown
    Located downstream of Belmont Avenue
    History of flooding or overtopping problems: Yes ☐ No ☒
    Sources of observed highwater: Hydrologic Investigations Atlas

11. Scour/migration problems: ☒ None/minimal ☐ Significant ☐ Severe
    Comments: _____
    Ice/Debris concerns: None/minimal ☒ Significant ☐ Severe ☐
    Comments: _____
    Countermeasures proposed: _____

12. Deviations from the general procedures presented above and in Chapters 6 and 7 of the Drainage Manual: _____
    (Attach supporting documents if necessary)

Prepared by: Donald Oliphant Date: 12-15-2010

Signed: (AQ/QC) _____ Date: 12/4/11

Hydraulic Report Checklist

The District or Consultant should complete the following checklist before submitting the Hydraulic Report for approval.

1. ☒ Title Page
2. ☒ Table of Contents
3. ☒ Narrative - (as outlined in Section 2-601.01 Item #3)
4. ☒ Waterway Information Table (WIT) - (as outlined in Section 2-601.01 Item #4)
5. ☒ Hydraulic Report Data Sheets
6. ☒ Location Map - should show the subject structure along with nearby location defining landmarks (cities, roads, highways, etc.)
7. ☒ USGS Hydraulic Investigation Map (District 1 only)
8. ☒ Photographs - (Minimum: U/S & D/S Structure Faces, Up & Down Channel, Up & Down Roadway Across Structure)
9. ☒ Hydrology (map and calculations)
10. ☒ Streambed Profile
11. ☒ Roadway Profile (existing and proposed)
12. ☒ Cross Section Plots - with plan layout preferably overlayed upon an aerial photo with the contours
13. ☒ Bridge Opening Plots
14. ☒ Natural Condition Analysis
15. ☒ Existing Condition Analysis
16. ☐ Proposed Condition Analysis

When HEC-RAS modeling is being used, ALL Plans (Natural, Existing, & Proposed) shall be included in ONE Project File.

17. ☐ Scour Analysis – Existing and Proposed Conditions
18. ☐ Compensatory Storage Calculations (if required)
19. ☒ Survey Notes (if available, No Electronic Point Files)
20. ☒ Correspondence Notes
21. ☒ CD with Project Files (Include pdf copy of the Hydraulic Report)

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Tab 1

SECTION 1

NARRATIVE
I-294 OVER SILVER CREEK

NARRATIVE

Project Description

The Elgin O'Hare-West Bypass study area encompasses eight (8) watersheds: West Branch DuPage River, Spring Brook, Meacham Creek, Salt Creek, Willow Creek, Higgins Creek, Bensenville Ditch, and Addison Creek. The length of the expressway and interchanges to be improved is approximately 50 miles that includes Elgin O'Hare Expressway and Thorndale Avenue approximately from Gary Avenue to York Road, I-90 approximately from Arlington Heights Road to Wolf Road and I-294 approximately from North Avenue to Wolf Road. It is estimated that approximately 25 miles of arterials and frontage roads also will be included in the study. A general project location map is included in Section 3 of this report.

This hydraulic report is submitted for a I-294 structure over Silver Creek. Separate hydraulic reports for impacted structures within each of the other watersheds are being prepared.

This hydraulic report documents the hydraulic conditions for the structure on the Tri-State Tollway (I-294) at Silver Creek in the Village of Franklin Park. The USGS Hydrologic Investigations Atlas and Flood Insurance Rate Map are included in Section 3.

Site Description

I-294 was constructed in the late 1950's as a major arterial for the western suburbs of Chicago. The Silver Creek crossing at I-294 consists of a twin 12 feet (span) by 8 feet (height) reinforced concrete box culvert (RCBC) that was presumably constructed at this time. The crossing is approximately 220 feet long and is located approximately 400 feet downstream of Franklin Avenue.

Field Observations

Field visits were completed on September 29 and December 14, 2010 to view existing conditions and verify survey data. Visits were also completed to photograph and observe surrounding structures within the modeling limits of this study. Photographs of all modeled structures are provided in Section 4.

Silver Creek is a highly urbanized watershed with very little open space. Godfrey Railyard is located upstream of the I-294 crossing. Residential and commercial warehouses are the primary land uses downstream of the crossing within the Village of Franklin Park and Leyden Township. Creek roughness values were generally comparable to those used in the effective FEMA hydraulic model. The

FEMA Flood Insurance Study (FIS) Manning's "n" values are provided in Section 3.

Stream Survey

A stream survey of the Silver Creek was prepared by D.B. Sterlin Consultants, Inc. (DBS) on June 8, 2010 and November 30, 2010, in accordance with the stream survey requirements in Section 2-600 of the IDOT Drainage Manual. Sixteen cross-section locations were surveyed along the Silver Creek. Plots of the cross-sections are included in Section 6. The stream survey was based on the North American Vertical Datum of 1988 (NAVD 1988) which is the same datum used for current FEMA hydraulic modeling. However, the effective WSP-2 hydraulic model was completed on National Geodetic Vertical Datum of 1929 (NGVD 1929). Survey notes are included in Section 14.

Datum Correlation

All elevations are referenced to the NAVD 1988 datum except the effective and duplicate effective hydraulic models. The latter two models used the old FEMA datum of NGVD 1929. The NAVD 1988 datum is consistent with other studies in the EOWB project and current FEMA guidelines. An approximate correlation between the two datums is 0.3 feet (NAVD 1988 = NGVD 1929 - 0.3 feet).

The Waterway Information Table and Hydraulic Report Data Sheets, included in Section 2, are presented in the NAVD 1988 datum.

Historical Flooding

The best available historical flooding data was taken from the Elmhurst Quadrangle Hydrologic Investigations Atlas (1963 – HA-68). The maximum known high water level per the Hydrologic Investigations Atlas is approximately 645.0 feet during the October 1954 event. The USGS historical flooding profile are provided in Section 3.

Other significant storm events within the Silver Creek watershed occurred in August 1987, September 2008, and July 2010. However, due to a lack of rainfall or stream gages within the Silver Creek watershed significant flooding data could not be obtained. A USGS stream gage (05530700) was operational on Silver Creek from 1954 to 1980 (at 9th Avenue, south of IL-64 or 4.5 miles downstream) providing 21 flow readings.

Sensitive Flood Receptors

There are sensitive flood receptors just downstream of the study reach. Residential and commercial properties downstream of Belmont Avenue have been experiencing flooding during storm events equal to and greater than a 10-year flood frequency.

The Franklin Park I-294 Industrial Area, located northwest of I-294, frequently floods during events equal to or greater than a 10-year storm event. While this flooding is not considered overbank, the tailwater from the Silver Creek has an adverse impact on the outlet storm sewer of the industrial park. The outfall for this storm sewer system is located just upstream of the I-294 culvert. A Drainage Investigation of this area was initiated by IDOT in September 2010 as part of the EOWB project.

Other Studies and Reports

The United States Army Corps of Engineers (USACOE) completed an analysis of the Silver Creek as part of the Upper Des Plaines River Phase II feasibility study in February 2007. The study focused on flood damage reduction, environmental restoration, water quality and recreation. Hydraulic modeling was completed using HEC-RAS.

CBBEL completed an unsteady HEC-RAS hydraulic model for the Metropolitan Water Reclamation District (MWRD) Lower Des Plaines River Watershed Detailed Plan (DWP) study in 2010. The Silver Creek subwatershed was modeled to provide a baseline condition for evaluating overbank flood prone areas and flood reduction projects.

Hydrology

Hydrology was taken from the Flood Insurance Study (FIS) effective WSP-2 hydraulic model. There are no active stage gages located in the Silver Creek watershed. Flowrates from the effective model were used because they provided more conservative results when compared to flowrates used in the MWRD DWP. Table 1 provides a comparison of these two flowrates.

TABLE 1
Flowrate Comparison

Storm Event (Yr)	MWRD FWP Flowrate (Q)	Effective Flowrate (Q)
10	174	355
50	402	550
100	665	655

Hydraulic Analysis

A hydraulic analysis of the Silver Creek was performed to develop the existing conditions and natural conditions flood elevations to determine the effects, if any of the proposed structure on the water surface profiles. Compensatory storage is required for the roadway if fill is proposed within the Silver Creek floodplain or floodway.

Regulatory Conditions Model

The effective WSP-2 hydraulic model of the Silver Creek was obtained from IDOT on November 3, 2010. A review of this model determined that several existing structures were not included. The model closely represented conditions shown on the USGS Hydrologic Investigations Atlas dated 1963. The I-294 culvert, Belmont Avenue culvert, and 3 railroad spur bridges were not included in the effective hydraulic model. Since the model is considerably different from actual conditions, the model will not be used for permit and design purposes. A hard copy and schematic of this model have been provided in Section 8 of this report. FIS information for the WSP-2 modeling can also be found in Section 3.

Duplicate Effective Model

Although the regulatory conditions model is considerably different from actual conditions, IDOT requested that the model be reproduced within the study reach in the HEC-RAS hydraulic model. Since the duplicate effective model produces water surface elevations greater than or equal (negative difference within 0.1') to the FIS profile, further calibration is not necessary. The comparison indicates that the duplicate effective model complies with the intent of the guidance noted in the meeting minutes.

Tables 2A-2D compare the regulatory conditions model to the duplicate effective model. Results are provided on the NGVD 1929 datum.

TABLE 2A
10-Year Regulatory vs. Duplicate Effective WSEL
NGVD 1929 Datum

HEC-RAS ID/WSP-2 ID	Regulatory WSP-2 WSEL (ft)	Duplicate Effective HEC-RAS WSEL (ft)	Difference (ft)
0/SV053	645.00	645.00	0.00
1	--	645.66	--
Franklin Avenue			
2/056SV	645.95	645.88	-0.07
3/SV056	646.2	646.15	-0.05
4	--	646.27	--
Godfrey Railyard			
6/SV059	647.70	648.75	1.05
7/SV060	648.70	649.32	0.62

TABLE 2B
50-Year Regulatory vs. Duplicate Effective WSEL
NGVD 1929 Datum

HEC-RAS ID/WSP-2 ID	Regulatory WSP-2 WSEL (ft)	Duplicate Effective HEC-RAS WSEL (ft)	Difference (ft)
0/SV053	645.50	645.50	0.00
1	--	646.32	--
Franklin Avenue			
2/056SV	647.00	646.92	-0.08
3/SV056	647.30	647.27	-0.03
4	--	647.52	--
Godfrey Railyard			
6/SV059	649.10	651.23	2.13
7/SV060	650.00	651.32	1.32

TABLE 2C
100-Year Regulatory vs. Duplicate Effective WSEL
NGVD 1929 Datum

HEC-RAS ID/WSP-2 ID	Regulatory WSP-2 WSEL (ft)	Duplicate Effective HEC-RAS WSEL (ft)	Difference (ft)
0/SV053	645.70	645.70	0.00
1	--	646.61	--
Franklin Avenue			
2/056SV	647.50	647.51	0.01
3/SV056	647.90	647.87	-0.03
4	--	648.15	--
Godfrey Railyard			
6/SV059	649.70	651.31	1.61
7/SV060	650.50	651.42	0.92

TABLE 2D
500-Year Regulatory vs. Duplicate Effective WSEL
NGVD 1929 Datum

HEC-RAS ID/WSP-2 ID	Regulatory WSP-2 WSEL (ft)	Duplicate Effective HEC-RAS WSEL (ft)	Difference (ft)
0/SV053	646.20	646.20	0.00
1	--	647.13	--
Franklin Avenue			
2/056SV	647.90	648.23	0.33
3/SV056	648.40	648.59	0.19
4	--	648.79	--
Godfrey Railyard			
6/SV059	650.30	651.50	1.20
7/SV060	651.30	651.68	0.38

Existing Conditions Model

The existing conditions HEC-RAS model was developed to insert surveyed data within the study reach. This model will serve as the permit/design model for the I-294 crossing since the regulatory conditions model does not reflect existing

conditions. Six surveyed crossings are within the designated study reach (from downstream to upstream):

- Railroad Spur Bridge #1
- Railroad Spur Bridge #2
- I-294 Culvert
- Railroad Spur Bridge #3
- Franklin Avenue Culvert
- Godfrey Railyard Culvert

Manning's "n" and flow locations were maintained as best as possible. The starting water surface elevation at cross-section SV046 was selected from the effective FIS profile. The existing conditions HEC-RAS output is provided in Section 9.

The Waterway Information Table included in Section 3 indicates that 500-year storm event will not overtop the I-294 roadway at this location.

Natural Conditions Model

The natural conditions model was completed by removing the I-294 structure from the existing conditions model. The face cross-section geometries bounding the I-294 structure adequately reflected natural conditions and were not revised. However, expansion/contraction and ineffective flow boundaries were removed.

The natural conditions model is included in Section 10. Tables 3A-3D compare natural conditions and existing conditions water surface elevations for all modeled storm events.

TABLE 3A
Comparison of 10-Year WSEL between
Natural Conditions and Existing Conditions
NAVD 1988 Datum

Cross-Section ID & Designation	Existing Distance To I-294 Culvert (ft)	Existing Conditions WSEL (ft)	Natural Conditions WSEL (ft)	Difference (ft)
1	1050	644.50	644.50	0.00
2	511	644.55	644.55	0.00
2.2	354	644.60	644.60	0.00
2.3	237	644.63	644.63	0.00
Railroad Spur Bridge #1				
2.4	208	644.66	644.66	0.00
2.6	115	644.64	644.64	0.00
2.8	32	644.80	644.80	0.00
Railroad Spur Bridge #2				
2.9	7	644.84	644.84	0.00
4	--	644.82	644.85*	-0.03
I-294 Culvert				
5	--	644.82	644.86*	-0.04
5.2	29	644.90	644.86	0.04
5.4	47	644.90	644.86	0.04
Railroad Spur Bridge #3				
5.6	81	644.91	644.88	0.03
5.8	118	644.94	644.91	0.03
6	232	644.99	644.95	0.04
6.5	397	645.05	645.02	0.03
7	436	645.06	645.03	0.03
Franklin Avenue Culvert				
8	518	645.15	645.12	0.03
9	553	645.19	645.16	0.03
Godfrey Railyard Culvert				
10	2353	646.03	646.00	0.03
12	3213	646.40	646.37	0.03

*Natural increases cause by existing submerged profile at face cross-sections

TABLE 3B
Comparison of 50-Year WSEL between
Natural Conditions and Existing Conditions
NAVD 1988 Datum

Cross-Section ID & Designation	Existing Distance To I-294 Culvert (ft)	Existing Conditions WSEL (ft)	Natural Conditions WSEL (ft)	Difference (ft)
1	1050	644.80	644.80	0.00
2	511	644.88	644.88	0.00
2.2	354	644.98	644.98	0.00
2.3	237	645.01	645.01	0.00
Railroad Spur Bridge #1				
2.4	208	645.06	645.06	0.00
2.6	115	645.03	645.03	0.00
2.8	32	645.31	645.31	0.00
Railroad Spur Bridge #2				
2.9	7	645.38	645.38	0.00
4	--	645.34	645.41*	-0.07
I-294 Culvert				
5	--	645.38	645.41*	-0.03
5.2	29	645.53	645.42	0.11
5.4	47	645.52	645.42	0.10
Railroad Spur Bridge #3				
5.6	81	645.55	645.45	0.10
5.8	118	645.60	645.50	0.10
6	232	645.66	645.57	0.09
6.5	397	645.76	645.67	0.09
7	436	645.76	645.68	0.08
Franklin Avenue Culvert				
8	518	646.04	645.95	0.09
9	553	646.12	646.03	0.09
Godfrey Railyard Culvert				
10	2353	648.31	648.22	0.09
12	3213	648.56	648.48	0.08

*Natural increases cause by existing submerged profile at face cross-sections

TABLE 3C
Comparison of 100-Year WSEL between
Natural Conditions and Existing Conditions
NAVD 1988 Datum

Cross-Section ID & Designation	Existing Distance To I-294 Culvert (ft)	Existing Conditions WSEL (ft)	Natural Conditions WSEL (ft)	Difference (ft)
1	1050	645.10	645.10	0.00
2	511	645.17	645.17	0.00
2.2	354	645.28	645.28	0.00
2.3	237	645.30	645.30	0.00
Railroad Spur Bridge #1				
2.4	208	645.37	645.37	0.00
2.6	115	645.33	645.33	0.00
2.8	32	645.65	645.65	0.00
Railroad Spur Bridge #2				
2.9	7	645.75	645.75	0.00
4	--	645.70	645.79*	-0.09
I-294 Culvert				
5	--	645.78	645.79*	-0.01
5.2	29	645.98	645.80	0.18
5.4	47	645.97	645.79	0.18
Railroad Spur Bridge #3				
5.6	81	646.00	645.83	0.17
5.8	118	646.05	645.89	0.16
6	232	646.11	645.96	0.15
6.5	397	646.22	646.07	0.15
7	436	646.22	646.07	0.15
Franklin Avenue Culvert				
8	518	646.64	646.49	0.15
9	553	646.74	646.59	0.15
Godfrey Railyard Culvert				
10	2353	649.90	649.75	0.15
12	3213	650.07	649.93	0.14

*Natural increases cause by existing submerged profile at face cross-sections

TABLE 3D
Comparison of 500-Year WSEL between
Natural Conditions and Existing Conditions
NAVD 1988 Datum

Cross-Section ID & Designation	Existing Distance To I-294 Culvert (ft)	Existing Conditions WSEL (ft)	Natural Conditions WSEL (ft)	Difference (ft)
1	1050	645.50	645.50	0.00
2	511	645.58	645.58	0.00
2.2	354	645.71	645.71	0.00
2.3	237	645.73	645.73	0.00
Railroad Spur Bridge #1				
2.4	208	645.81	645.81	0.00
2.6	115	645.76	645.76	0.00
2.8	32	646.19	646.19	0.00
Railroad Spur Bridge #2				
2.9	7	646.37	646.37	0.00
4	--	646.29	646.44*	-0.15
I-294 Culvert				
5	--	646.53	646.43	0.10
5.2	29	646.82	646.45	0.37
5.4	47	646.80	646.43	0.37
Railroad Spur Bridge #3				
5.6	81	646.92	646.53	0.39
5.8	118	646.99	646.60	0.39
6	232	647.04	646.68	0.36
6.5	397	647.16	646.82	0.34
7	436	647.26	646.94	0.32
Franklin Avenue Culvert				
8	518	648.08	647.85	0.23
9	553	648.06	647.82	0.24
Godfrey Railyard Culvert				
10	2353	651.60	651.56	0.04
12	3213	651.66	651.63	0.03

*Natural increases cause by existing submerged profile at face cross-sections

Proposed Conditions Model

The existing structure at I-294 will not be modified as part of the EOWB project.

IDNR-OWR Floodway Permit Requirements

The subject crossing is subject to Illinois Department of Natural Resources – Office of Water Resources (IDNR-OWR) Part 3708 Rules for Floodway

Construction in Northeast Illinois since there is mapped floodway and there is greater than one square mile of tributary area. However, since no future construction will occur as part of the EOWB no permit documentation has been completed. There are no reports indicating that the subject structure is source of flood damage.

Scour Analysis

No scour analysis was completed since the subject structure is a culvert.

Conclusion and Design Recommendations

The existing information provided as part of this hydraulic report meets or exceeds IDOT standards. Since this structure will not be modified as part of the EOWB project, no additional hydraulic modeling or information will be provided.

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Tab 2

SECTION 2

WATERWAY INFORMATION TABLE
HYDRAULIC REPORT DATA SHEETS

Illinois Department of Transportation

Culvert Waterway Information Table

Route: EOWB
Section: 20
County: Cook
Station:

S.N. Exist: IDOT 016-2746/Tollway 289C
S.N. Prop: N/A
Waterway: Silver Creek

Computed by: DCO
Date: 12/05/11

Checked by: JSG
Date: 10/1/12

Drainage Area = +/6.5 Square Miles

Existing Overtopping Elevation: 668.0 ft. @ Sta
Proposed Overtopping Evaluation: N/A ft. @ Sta

Flood	Frequency Year	Discharge cfs	Waterway Opening (sq. ft.)		Natural H.W.E.	Head (ft.)		Headwater Elev. (ft.)	
			Existing	Proposed		Existing	Proposed	Existing	Proposed
	10	355	186.0	N/A	644.86	0.04	N/A	644.90	N/A
Design	50	550	192.0	N/A	645.41	0.11	N/A	645.52	N/A
Base	100	655	192.0	N/A	645.79	0.18	N/A	645.97	N/A
OVT(E)									
OVT(P)									
Max Calc	500		192.0	N/A	646.43	0.37	N/A	646.80	N/A

10-Year Outlet Velocity from Existing Structure = 1.9 fps
10-Year Outlet Velocity from Proposed Structure = fps

OVT = Overtopping Event
(E) Existing (P) Proposed

DATUM: NAVD '88
ALL-TIME H.W.E. & DATE: N/A, New Alignment

SCOPE OF WORK:

EXISTING STRUCTURE

Bridge or Culvert Type:	RCBC
Cell Dimensions (W x H):	12'W x 8'H
# of spans \ cells:	2
Length:	220
U/S Flowline:	637.11
D/S Flowline:	636.99
Skew:	0
Low EOP:	668 ft.

PROPOSED STRUCTURE

Culvert Type:	N/A
Cell Dimensions (W x H):	N/A
# of cells:	N/A
Length:	N/A
U/S Flowline:	N/A
D/S Flowline:	N/A
Skew:	N/A
Low EOP:	N/A

EXISTING DROPBOX

Dimensions:	
Drop:	
Weir Elevation:	

PROPOSED DROPBOX

Dimensions:	
Drop:	
Weir Elevation:	

NOTE(S): All elevations are on Higway Datum, NAVD '88=NGVD '29 - 0.3 ft.

BACK-UP CALCULATIONS FOR WIT

Route: I-294 Computed: DCO Date: 12/24/2010
Waterway: Silver Creek Checked: JSG Date: 10/1/12

Calculate Created Head

Frequency	Natural H.W.E. (ft)[1]		Exist. Headwater Elev. (ft)		Prop. Headwater Elev. (ft)		Created Head (ft)[2] @ Approach Section	
	U/S Face of Structure	Approach Sect. (29' U/S)	U/S Face of Structure	Approach Sect. (29' U/S)	U/S Face of Structure	Approach Sect. (29' U/S)	Existing	Proposed
10-year	644.86	644.86	644.90	644.90			0.04	
50-year	645.41	645.42	645.52	645.53			0.11	
100-year	645.79	645.80	645.97	645.98			0.18	
500-year	646.43	646.45	646.80	646.82			0.37	

(1) The natural highwater elevation is the water survface elevation at the upstream side of the crossing as modeled in the stream natural condition, without the structure.

(2) The created head is calculated at the approach cross-section, and not at the upstream face of the bridge/culvert. This difference in elevation is then added to the Natural H.W.E. at the U/S face of the structure. This method of calcuating created head is only required for bridges and some major culvert crossings. Also, the preferred created head should never be negative. headwater elevations = The natural highwater elevation + the created head

CALCULATE FREEBOARD AND CLEARANCE

Low Road Elevation (ft)[3]			
Existing	Station	Proposed	Station
668.00	N/A		
Low Beam Elevation (ft)			
Existing	Station	Proposed	Station
N/A	N/A		
Proposed Freeboard (ft)			
10-year	50-year[4]	100-year	500-year
Proposed Clearance (ft)			
10-year	50-year[5]	100-year	500-year
N/A	N/A		

(3) Low road elevation is calculated at the edge of pavement, and on the low side of the roadway.

(4) Freeboard is calculated from the 50-year design headwater elevation to the proposed low road elevation in the floodplain.

(5) Vertical clearance is calculated from the 50-year natural high-water elevation to the proposed low chord (beam) bridge elevation (2 ft minimum requirement)

CALCULATE EFFECTIVE WATERWAY OPENING AREA FOR CULVERT

Structure Size (ft x ft)			
Existing Width	Existing Height	Proposed Width	Proposed Height
12.0	8.0		
Structure Invert Elevation (ft)			
Existing		Proposed	
U/S	D/S	U/S	D/S
637.1	637.0		

Waterway Opening Area (ft^2)[6]			# of Culverts
Frequency	Existing	Proposed	2
10-year	186.00	0.00	
50-year	192.00	0.00	
100-year	192.00	0.00	
500-year	192.00	0.00	

Illinois Department of Transportation

Hydraulic Report Data Sheets

Route	Elgin O'Hare-West Bypass	P or D #	
Section	I-294 over Silver Creek2	PTB #	
County	Cook		
Exist SN	016-2746		
Prop SN			

General Information

1. Name of the Stream: Silver Creek

2. Location of the Structure: NE ¼ of the SW ¼ of Section 20 , Township 39N, Range 12E of the 3rd P.M.

3. Hydraulic Report Prepared By: ☒ Consultant Christopher B. Burke Engineering, Ltd. ☐ District

4. Hydraulic Report Approval Authority: ☒ District – Post PDF of HR to BBS Hydraulics SharePoint Server ☐ BBS Hydraulics - Submit 2 hard copies of HR to BBS Hydraulics

Site Design Data

5. Drainage Area (sq. mi.): +/- 6.5 sq. mi.

6. Highway Classification: ☐ Rural ☒ Urban ☐ Other ☒ Principal Arterial ☐ Minor Arterial ☐ Collector ☐ Local

7. Design Frequency: ☐ 30 yr ☒ 50 Yr. ☐ Other

8. Number of Waterway Information Tables (WIT): 1
   If more than one, explain:

Hydrologic & Hydraulic Analysis

9. Hydrology Modeling (check all that apply): ☐ USGS/Stream Stats ☒ FIS ☐ Gage Data ☐ Other

10. Hydraulic Modeling (check all that apply):
    a. Method: ☒ HEC-RAS ☐ WSPRO ☐ Other
    b. Manning's "n" values determined as per IDOT DM CH.5? ☒ Yes ☐ No
       If no, explain:
    c. Source of Starting WSE: FIS
    d. Non- IDOT encroachments in Survey? ☒ Yes ☐ No
       If yes, are they accounted for? ☒ Yes ☐ No
    e. Does the Tailwater Control? ☐ Yes ☒ No
       If yes, list:
    f. Were the Expansion/Contraction cones properly addressed? ☒ Yes ☐ No ☐ N/A
       If No or N/A, explain:

g. What Expansion and Contraction Rates were used? Expansion: 4:1 (X:1)
Contraction 1:1 (X:1)

IDNR – OWR Floodway Permit

11. Is area experiencing urbanization or expected to urbanize within 10 years? ☒ Yes ☐ No

12. Are there any sensitive flood receptors located upstream within possible backwater influence? ☒ Yes ☐ No
If yes, list and describe critical upstream flood damageable properties and their elevations.
Franklin Park Industrial Park, Silver Creek tailwater effect on outlet storm sewer system

13. Is there any History of Flooding or Overtopping problems? ☐ Yes ☒ No
Sources of Observed Highwater:
Hydrologic Investigations Atlas (HA-68, 1963)

14. Is the structure hydraulically connected to or within the floodway of an IDNR-OWR designated Public Body of Water? ☐ Yes ☒ No

15. Required IDNR - OWR Permit type:
☐ Individual ☐ SWP #2 ☐ SWP #12 ☒ Floodway
☐ None ☐ Other

Proposed Structure Data

16. Project Scope (check all that apply):
a. ☐ Complete Replacement
b. ☐ Superstructure Replacement
c: ☐ Superstructure Widening; Length of Pier Extension in the water:
U/S D/S
d. ☐ Bridge ☒Culvert
e. ☐ New Alignment
f. Work Planned Below Q_{100} HWE? ☐ Yes ☐ No
g. ☐ Profile Raise

17. If a bridge is proposed, supply:
Flow line elevation (ft):
Preliminary low beam elevation (ft):
Width of deck (ft):
Total length from face to face of abutment (ft)
Abutment type:
Skew (degrees):
Number of spans:

18. If a culvert is proposed, supply:
Type and size:
Upstream invert elevation (ft):
Downstream invert elevation (ft):
Length (ft):
Entrance type:
Skew (degrees):
Note: Upstream and downstream elevations should reflect the elevations before the 3" drop is applied

19. If a three-sided structure is proposed, supply:
Flow line elevation (ft):
Span (ft):
Height (ft):
Skew (degrees):
Length (ft):
Number of spans:

20. a. Is the IDOT Clearance Policy Met? ☐ Yes ☐ No ☐ NA Value (ft):
b. Is the IDOT Freeboard Policy Met? ☐ Yes ☐ No ☐ NA Value (ft):

21. Type of streambed soil : ☒ Clay ☒ Silt ☐ Sand ☐ Loam ☐

22. Scour/ Migration Problems: ☒ None/Minimal ☐ Significant ☐ Severe
Comments:

Ice Concerns: ☒ None/Minimal ☐ Significant ☐ Severe
Comments:

Debris Concerns: ☒ None/Minimal ☐ Significant ☐ Severe
Comments:

Countermeasures Proposed:

Existing Structure Data

	Structure U/S	Subject Structure	Structure D/S
23. Distance from proposed structure: (ft.)	± 61'	I-294	± 28'
24. Type of structure:	RR Bridge	RCBC	RR Bridge
25. Low beam elevation:	646.20'	N/A	645.35'
26. Flow line elevation:	639.29'	637.11'	639.81'
27. Maximum known high water elevation:	± 645'	± 645'	± 645'
28. Date of maximum high water:	October 1954	October 1954	October 1954
29. Cause (backwater, headwater, etc.):	Backwater	Backwater	Backwater
30. Does structure carry entire design flood flow?	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No
If not, state area of additional waterway opening: (ft^2)	N/A	N/A	N/A
31. Type and size of existing overflow structures:	N/A	N/A	N/A
32. Has adverse scour occurred under or adjacent to the structure?	N/A	N/A	N/A
33. Classify type of scour and/or aggradation / degradation:	N/A	N/A	N/A

Required Additional Data

34. Deviations from the General Procedures presented in IDOT DM CH. 2, CH.6, and CH.7:

35. Information regarding high water from other streams, reservoirs, flood control projects, proposed channel changes, or other controls affecting proposed waterway area:

36. Site Inspection made by: Donald Oliphant Date: 10/2010

Remarks:

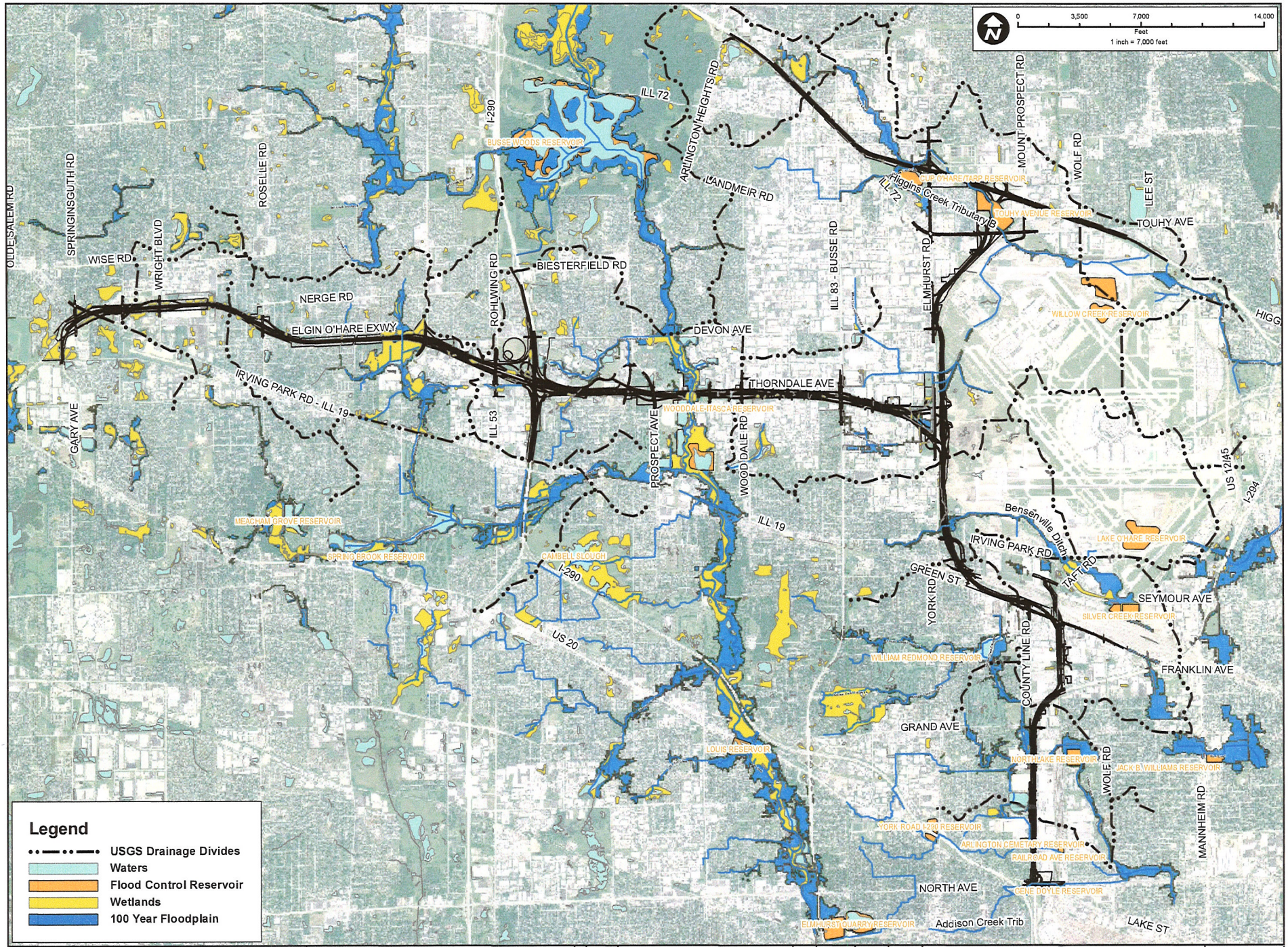
37. Prepared by: Donald Oliphant Date 12-23-10

Signed (QA/QC): D C. Oliphant Date 10/4/~

Tab 3

SECTION 3

GENERAL PROJECT LOCATION MAP
USGS HYDROLOGIC INVESTIGATIONS ATLAS
HISTORIC FLOODING
FLOOD INSURANCE RATE MAP
FLOOD INSURANCE STUDY INFORMATION



CHRISTOPHER B. BURKE ENGINEERING LTD.
9575 West Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

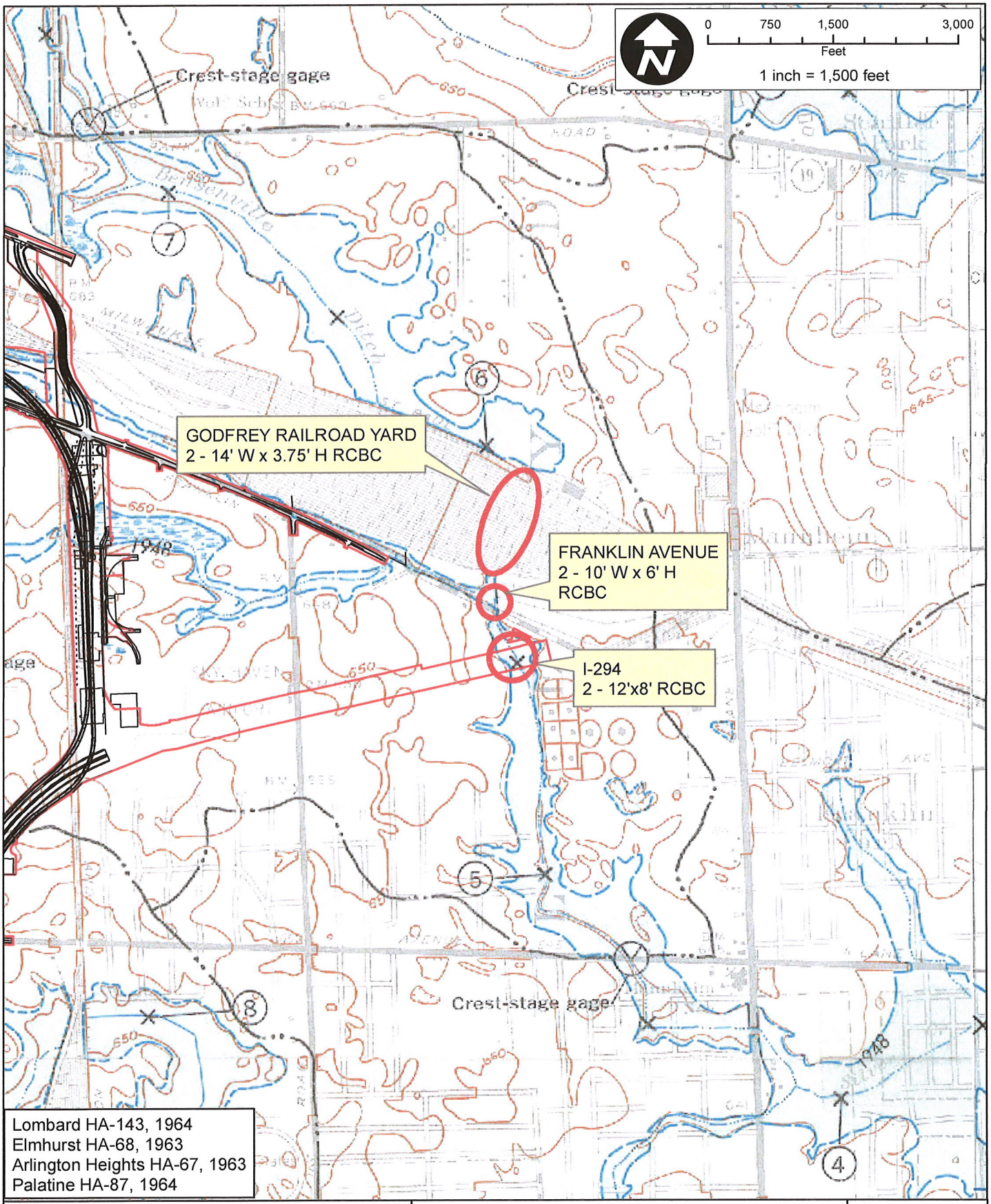
CLIENT: ILLINOIS DEPARTMENT OF TRANSPORTAION

NO.	DATE	NATURE OF REVISION

DSGN.	
DWN.	DWALTERS
CHKD.	
SCALE:	1:7,000
MODEL:	ArcGIS 10
PLOT DATE	12/13/2011
FILE NAME	Drainage Exhibit Revised 8.5X11
PATH	N:\dor\070404\GIS\Exhibits\Drainage Exhibit Revised 8.5X11.mxd

TITLE: **ELGIN O'HARE - WEST BYPASS GENERAL PROJECT LOCATION MAP**

PROJ. NO. 070404
DATE:
SHEET 0 OF 0
DRAWING NO. **EXH 1**



CLIENT:
ILLINOIS DEPARTMENT OF TRANSPORTATION

TITLE:
ELGIN O'HARE - WEST BYPASS
I-294 OVER SILVER CREEK
HYDROLOGIC INVESTIGATIONS ATLAS

PROJ. NO.	070404
DATE:	11-01-2010
SHEET	0 OF 0
DRAWING NO.	

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DSGN.			SCALE:	1"=1,500'
DWN.			GIS USER	MHAYES
CHKD.			PLOT DATE	
FILE:				

EXH 2A

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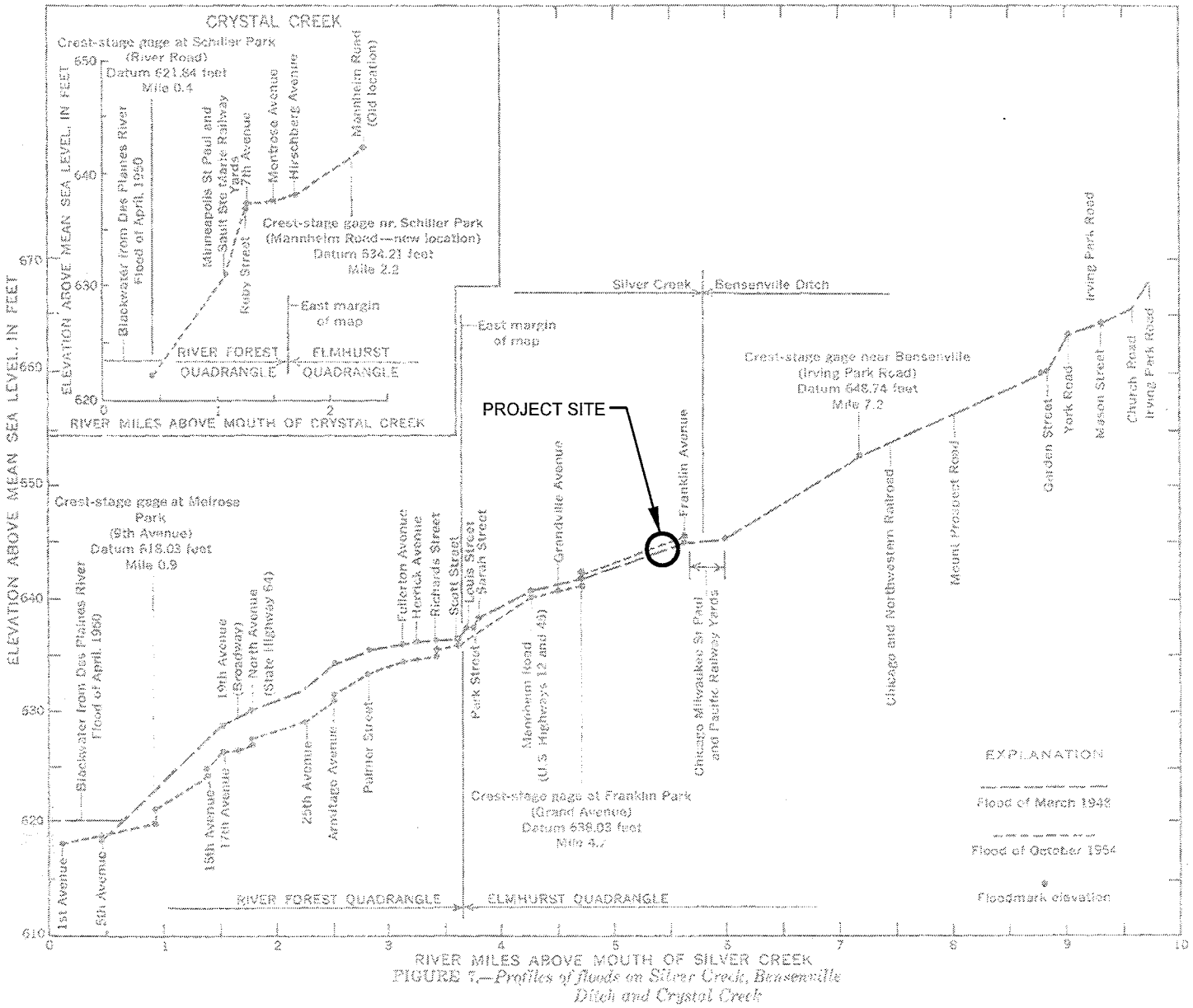

FIGURE 7.—Profiles of floods on Silver Creek, Bensenville Ditch and Crystal Creek

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Rosemont, Illinois 60018 (847) 823-0500

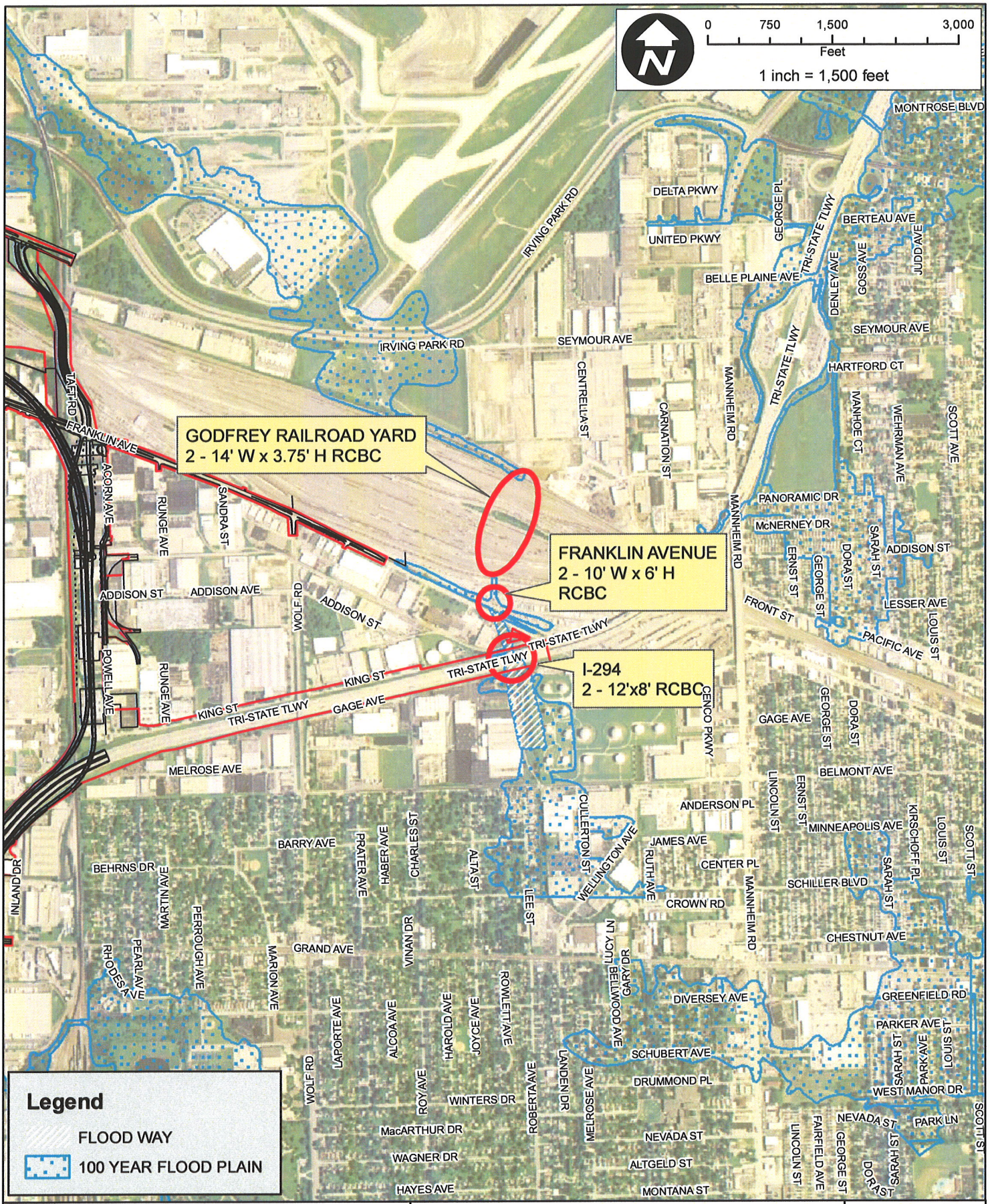
CLIENT: **ILLINOIS DEPARTMENT OF TRANSPORTATION**

HISTORICAL FLOODING

PROJECT NO. 07-0404

DATE 12/21/2010

EXHIBIT 2B



CLIENT:
ILLINOIS DEPARTMENT OF TRANSPORTATION

TITLE:
ELGIN O'HARE - WEST BYPASS
I-294 OVER SILVER CREEK
FLOOD INSURANCE RATE MAP

PROJ. NO.	070404
DATE:	11-01-2010
SHEET	0 OF 0
DRAWING NO.	EXH 3A

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DSGN.			SCALE:	1"=1,500'
DWN.			GIS USER	MHAYES
CHKD.			PLOT DATE	
FILE:				

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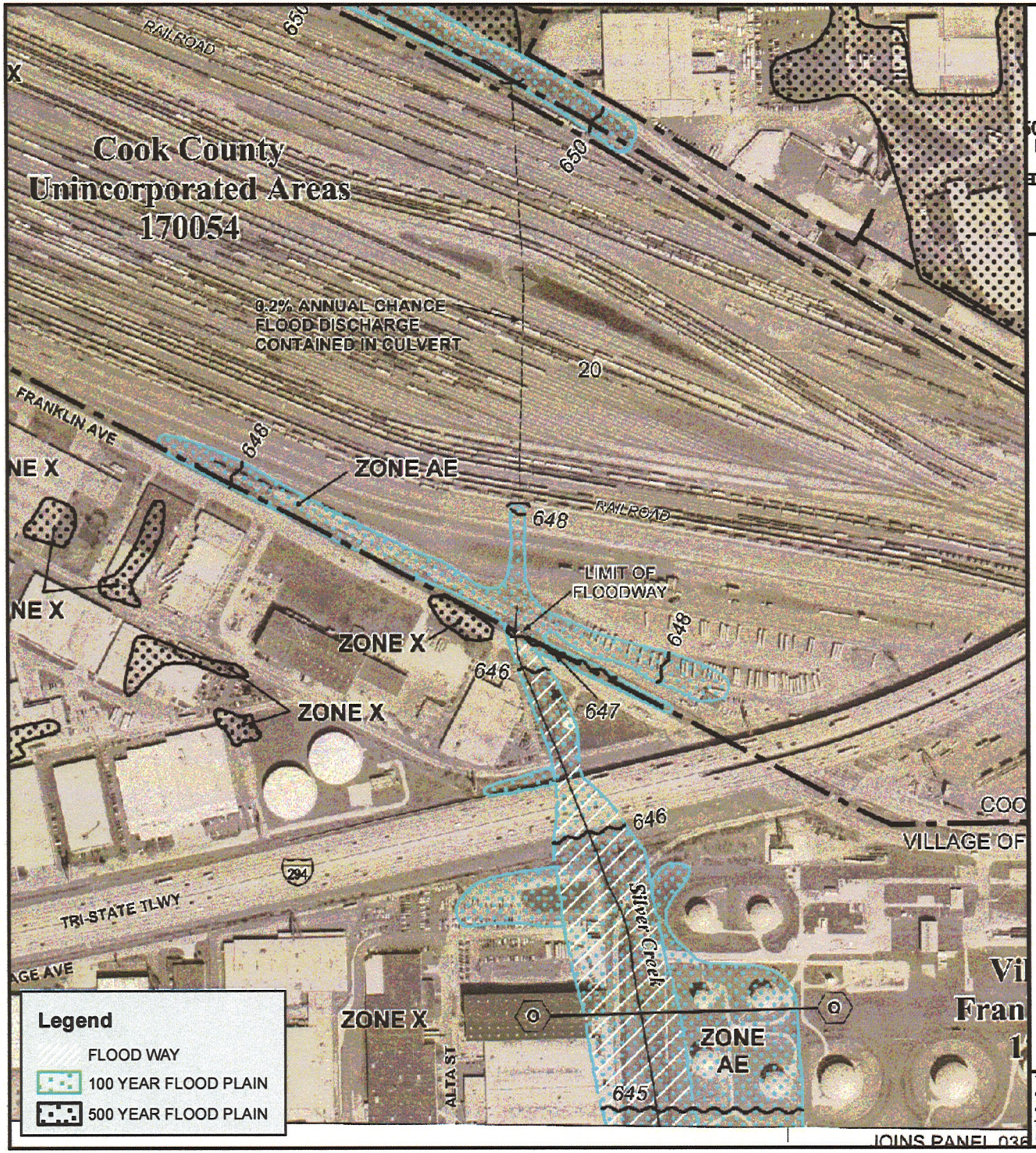

MAP SCALE 1" = 500'

0 500 1000 FEET

METE

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0359J

FIRM

FLOOD INSURANCE RATE MAP

COOK COUNTY, ILLINOIS

AND INCORPORATED AREAS

PANEL 359 OF 832

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CHICAGO, CITY OF	170074	0359	J
COOK COUNTY	170054	0359	J
FRANKLIN PARK, VILLAGE OF	170394	0359	J
SCHILLER PARK, VILLAGE OF	170159	0359	J

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
17031C0359J

MAP REVISED
AUGUST 19, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

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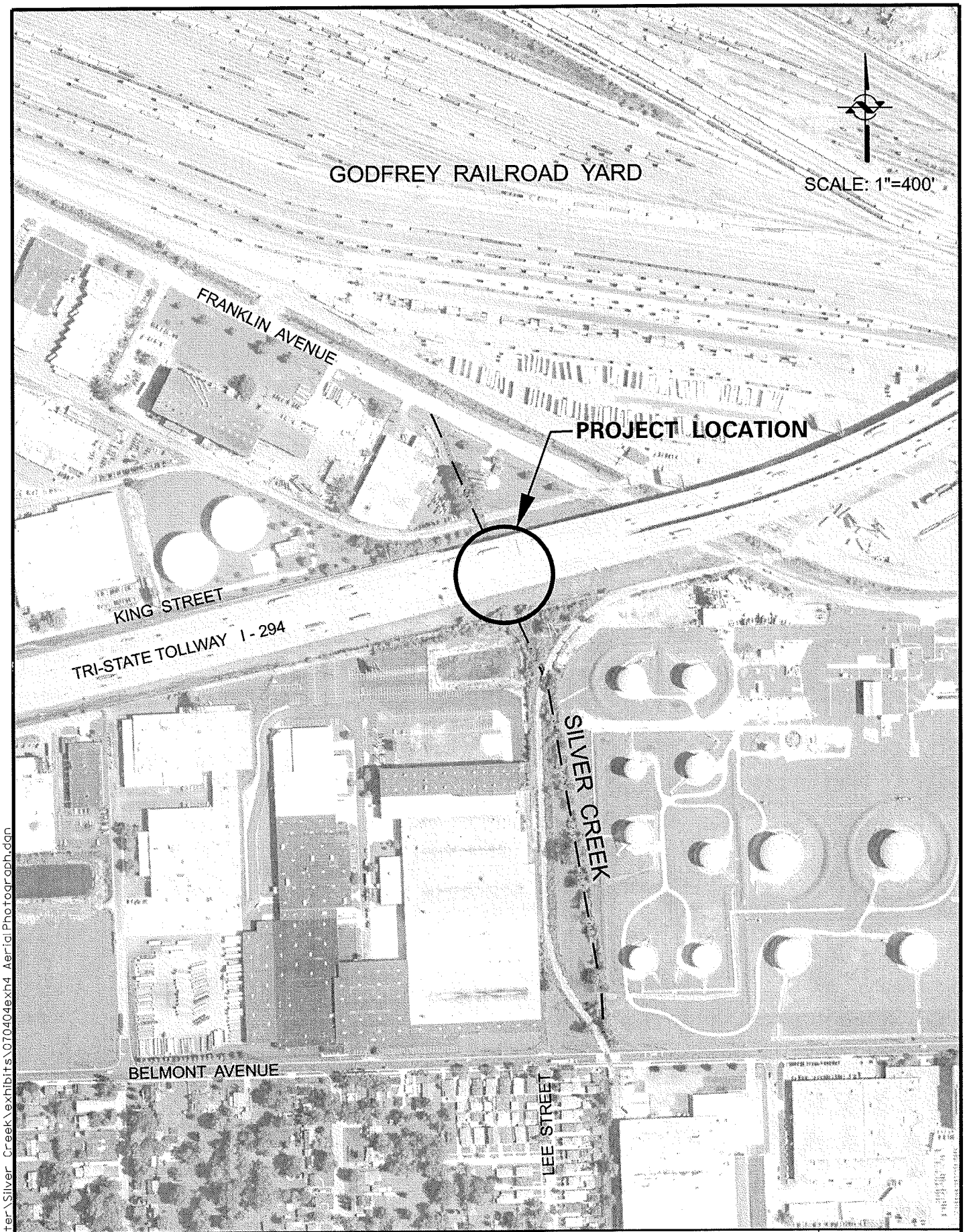
EXH 3B



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Rosemont, Illinois 60018 (847) 823-0500

CLIENT: ILLINOIS DEPARTMENT OF TRANSPORTATION

PROJECT NO. 07-0404

DATE 12/21/2010

AERIAL PHOTOGRAPH

EXHIBIT 4

Table 14 – Summary of Discharges (Continued)

Flooding Source and Location	Drainage Area (square miles)	Peak Discharges (cubic feet per second) 10-Percent-Annual-Chance	2-Percent-Annual-Chance	1-Percent-Annual-Chance	0.2-Percent-Annual-Chance
Silver Creek					
At mouth at Des Plaines River	11.6	465	712	842	1,125
At North Avenue	10.3	443	680	802	1,075
At Armitage Avenue	9.1	351	620	768	1,145
Approximately 800 feet upstream of Fullerton Avenue	9.1	425	645	770	1,010
Just upstream of Scott Street	8.7	420	640	760	1,000
At Grand Avenue	7.4	303	545	669	1,015
Approximately 1,800 feet upstream of Grand Avenue	6.8	370	570	670	890
Approximately 800 feet upstream of Belmont Avenue	6.6	360	560	660	880
At Franklin Avenue	6.4	355	550	655	875
At Railroad yard	6.1	350	535	640	850
Skokie River (See entry following Chicago River, North Branch)					
Skokie River, Botanical Garden Diversion					
At confluence with Skokie River	*[3]	54	388	543	690
Skokie River, West Ditch					
At confluence with Skokie River	1.2	72	333	638	1,141
At Tower Road	0.8	54	67	73	74
South Navy Ditch					
Just downstream from Soo Line Railroad	1.9	217	351	410	527
South Tributary to Tinley Creek					
At 88th Avenue	0.4	*	*	51	*
Spring Creek					
At 118th Avenue	2.3	108	205	259	396
At 159th Street	1.6	61	90	97	117
At 151st Street and Wolf Road	0.8	64	112	139	195
Stony Creek (East)					
At confluence with Calumet-Sag Channel	4.5	260	395	459	620
At Sacramento Avenue	4.3	255	390	454	615
At Central Park Avenue	3.6	205	315	365	495
At Crawford Avenue	2.4	158	239	277	372
At Cicero Avenue	0.2	50	75	100	150

* Data not available

[3] Includes split flow from Skokie River downstream of Lake Cook Road plus local drainage

EXHIBIT 10A

Table 17 - Manning's "n" Values (Continued)

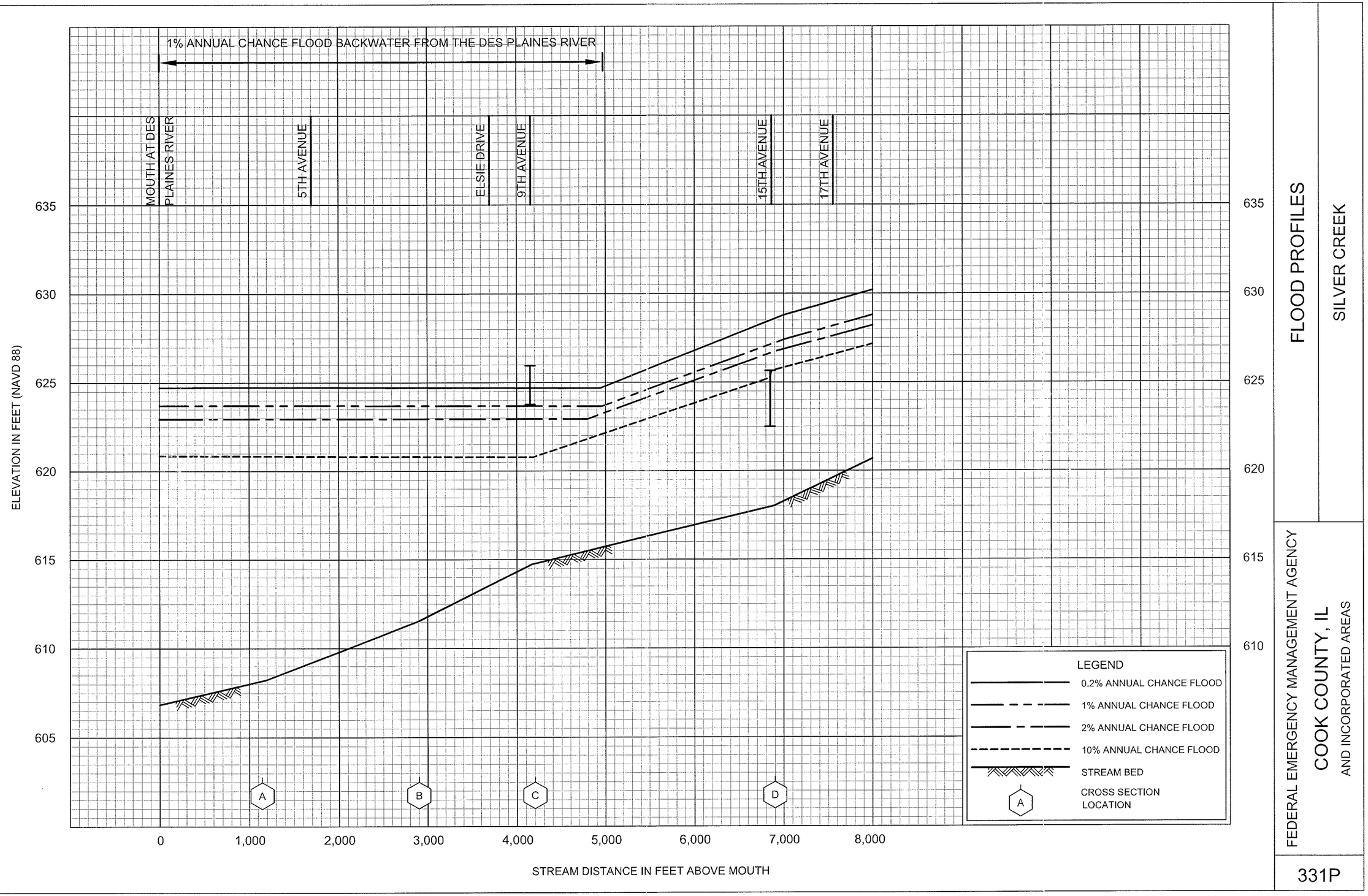
Stream	Channel "n"	Overbank "n"
Poplar Creek South Branch	0.06-0.080	0.04
Poplar Creek Tributary A	0.04-0.08	0.014-0.08
Prairie Creek	0.020.150	0.035-1.0
Salt Creek	0.03-0.100	0.023-0.080
Salt Creek, Arlington Heights Branch	0.040-0.070	0.060-0.090
Salt Creek, Arlington Heights Branch, Anderson Drive Tributary	0.05	0.060-0.080
Salt Creek Middle Fork	0.09	0.09
Salt Creek South Fork	0.080-0.095	0.065-0.095
Salt Creek Tributary	0.050-0.080	0.03
Salt Creek Tributary A	0.050-0.060	0.060-0.080
Salt Creek Tributary B	0.050-0.060	0.060-0.080
Salt Creek Tributary C	0.050-0.060	0.060-0.080
Salt Creek Tributary D	0.050-0.060	0.060-0.080
Salt Creek (Upper Reach)	0.050-0.060	0.060-0.080
Salt Creek West Branch	0.040-0.070	0.060-0.080
Salt Creek West Branch Tributary A	0.040-0.070	0.060-0.080
Salt Creek West Branch Tributary #3	0.040-0.070	0.060-0.080
Salt Creek West Branch Tributary #4	0.040-0.070	0.060-0.080
Salt Creek West Branch Tributary #5	0.040-0.070	0.060-0.080
Salt Creek West Branch Tributary #6	0.040-0.070	0.060-0.080
Salt Creek West Branch Tributary #7	0.040-0.070	0.060-0.080
Sexton Ditch	0.04-0.05	0.04-0.05
Silver Creek	0.030-0.1	0.030-0.085
Skokie River	0.022-0.035	0.06-0.08
Skokie River West Ditch	0.035	0.06
Skokie River Botanical Garden Diversion	0.022-0.035	0.06-0.08
South Navy Ditch	0.045	0.08
Spring Creek	0.035-0.080	0.030-0.040
Stony Creek (East)	0.048-0.098	0.014-0.050
Stony Creek (West)	0.050-0.14	0.030-0.045
Techny Drain	0.040-0.080	0.040-0.065
Techny Drain South Fork	0.040-0.080	0.040-0.065
Third Creek	0.045-0.060	0.047-0.070
Thorn Creek	0.055-0.085	0.046-0.18

EXHIBIT 10B

Table 16 - Hydraulic Methodologies (Continued)

Stream	Community	Method	Starting Water-Surface Elevation
Salt Creek West Branch Tributary 3	Schaumburg	HEC-2	confluence with Salt Creek West Branch
Salt Creek West Branch Tributary 4	Schaumburg	HEC-2	confluence with Salt Creek West Branch
Salt Creek West Branch Tributary 5	Schaumburg	HEC-2	confluence with Salt Creek West Branch
Salt Creek West Branch Tributary 6	Schaumburg	HEC-2	confluence with Salt Creek West Branch
Salt Creek West Branch Tributary 7	Elk Grove Village, Schaumburg	HEC-2	confluence with Salt Creek West Branch
Sexton Ditch	Schiller Park	HEC-2	confluence with Crystal Creek Tributary
Silver Creek	Cook County,	WSP-2	rating curve based on SCS profiles
	Melrose Park	WSP-2	10-year WSEL at confluence with Des Plaines River
	Maywood, Franklin Park	WSP-2	confluence with Des Plaines River
Skokie River (See entry following Chicago River, North Branch)			
Skokie River, West Ditch	Cook County, Northfield,		confluence with Skokie River Note: No floodway modeling - floodway assumed
	Winnetka	FEQ	coincident with floodplain boundary within Forest Preserve
Skokie River, Botanical Garden Diversion	Cook County, Northbrook,		confluence with Skokie River Note: No floodway modeling - floodway assumed
	Glencoe	FEQ	coincident with floodplain boundary within Forest Preserve

EXHIBIT 10C



FLOOD PROFILES

SILVER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

COOK COUNTY, IL

AND INCORPORATED AREAS

331P

BROADWAY AVENUE
NORTH AVENUE
RAILROAD
25TH AVENUE
ARMITAGE AVENUE

640
635
630
625
620

ELEVATION IN FEET (NAVD 88)

CULVERT

E
F
G
H

8,000
9,000
10,000
11,000
12,000
13,000

STREAM DISTANCE IN FEET ABOVE MOUTH

LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
A
CROSS SECTION LOCATION

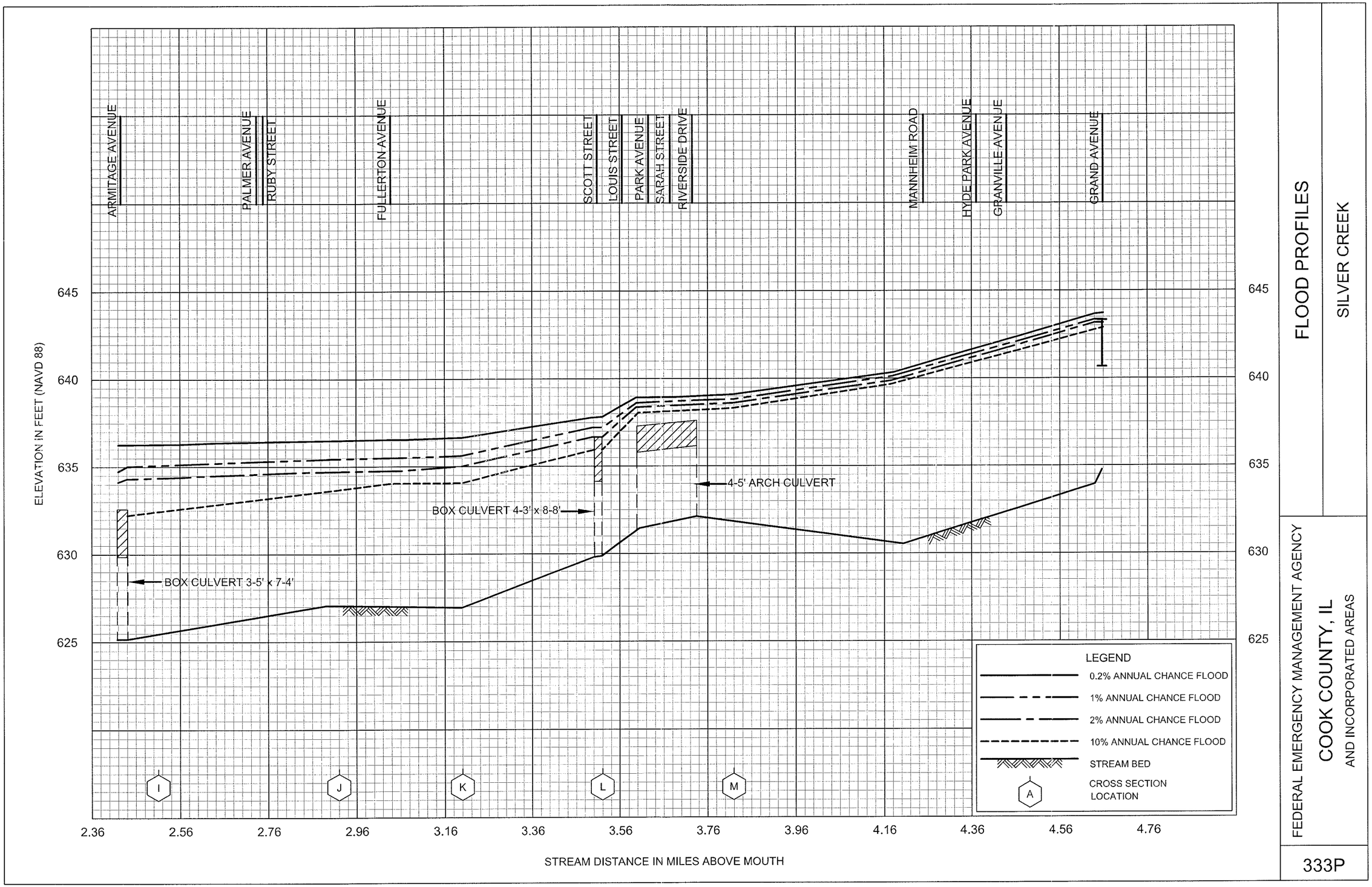
FLOOD PROFILES

SILVER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

COOK COUNTY, IL
AND INCORPORATED AREAS

332P



FLOOD PROFILES

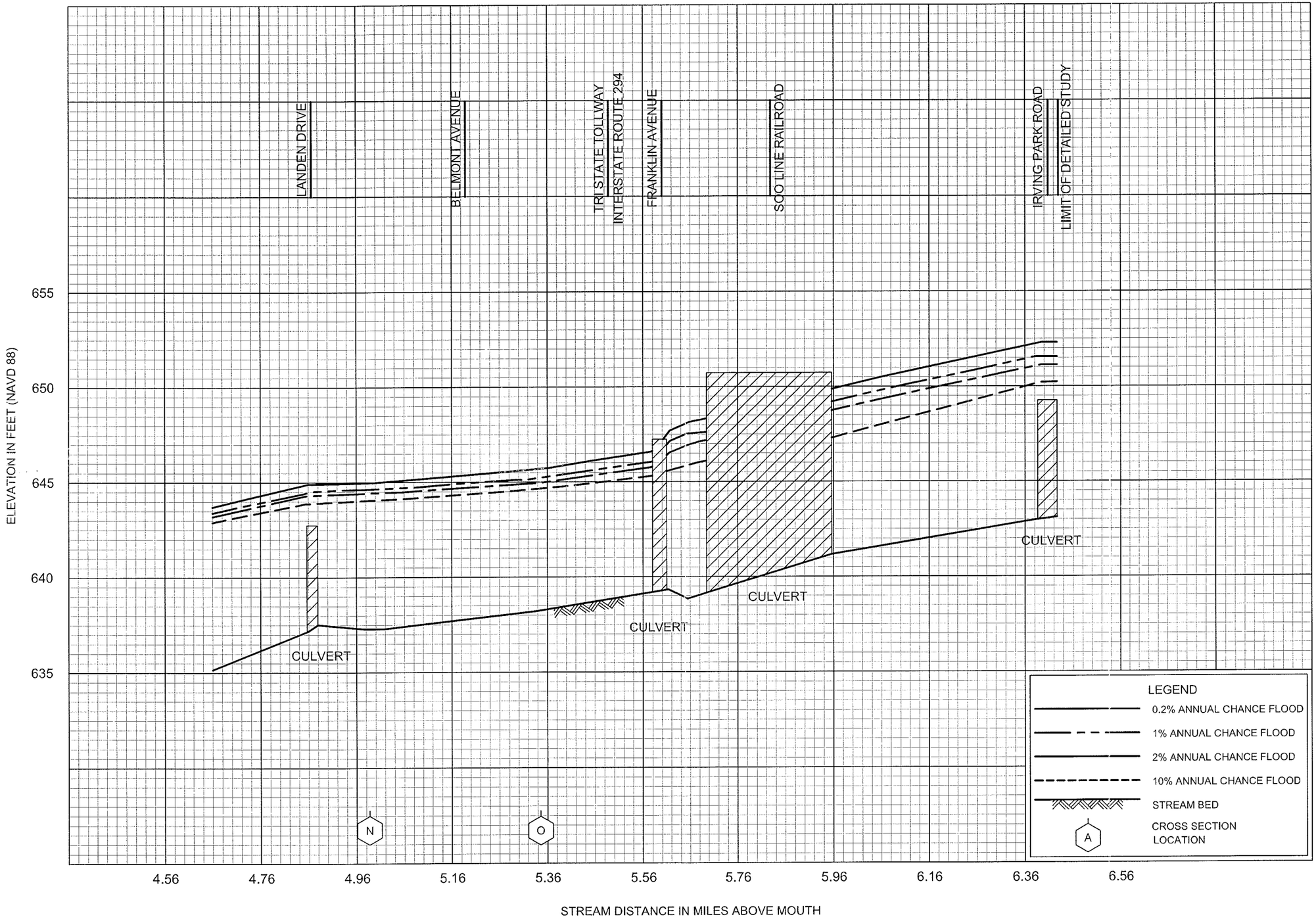
SILVER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

COOK COUNTY, IL

AND INCORPORATED AREAS

333P



FLOOD PROFILES

SILVER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

COOK COUNTY, IL

AND INCORPORATED AREAS

334P

Tab 4

SECTION 4

SITE PHOTEGRAPHS

Structure Photos – Exhibit 5

U/S Face I-294 Culvert (2-12'Wx8'H RCBC)

D/S Face I-294 Culvert (2-12'Wx8'H RCBC)

Structure Photos – Exhibit 5

D/S Face Railroad Spur Bridge #1

U/S Face Railroad Spur Bridge #1

Structure Photos – Exhibit 5

D/S Face Railroad Spur Bridge #2

U/S Face Railroad Spur Bridge #2

Structure Photos – Exhibit 5

D/S Face Railroad Spur Bridge #3

U/S Face Railroad Spur Bridge #3

Structure Photos – Exhibit 5

D/S Face Franklin Avenue (2-10'W x 6'H RCBC)

U/S Face Franklin Avenue (2-10'W x 6'H RCBC)

Structure Photos – Exhibit 5

D/S Face Godfrey Railyard Culvert (2-14'Wx3.75'H RCBC)

U/S Face Godfrey Railyard Culvert (2-14'Wx3.75'H RCBC)

Structure Photos – Exhibit 5

Silver Creek Upstream of Godfrey Railyard

Tab 5

SECTION 5

STREAMBED PLAN AND PROFILE
ROADWAY PLAN AND PROFILE

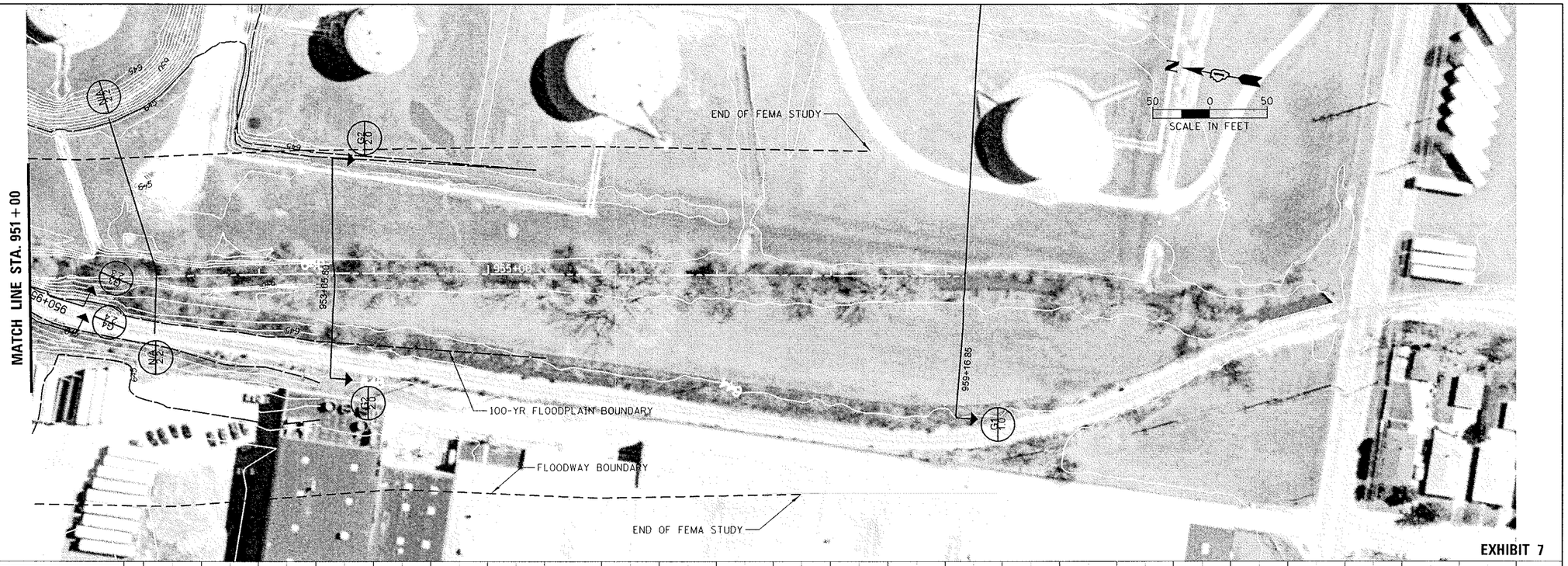
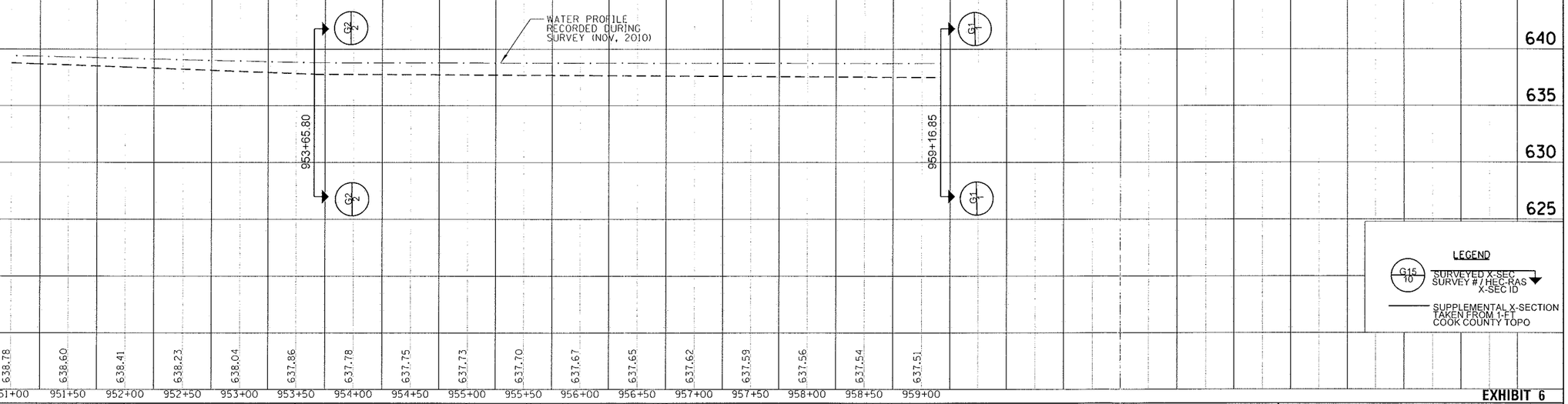


EXHIBIT 7

ELEVATION BENCHMARKS DATUM: NAVD 1988		
NO.	DESCRIPTION	ELEV.
OM100	O'HARE MONUMENT 100	654.08

NOTES:
1. FLOODWAY BOUNDARY IS COPIED DIRECTLY FROM EFFECTIVE FLOOD INSURANCE RATE MAP.
2. FLOODPLAIN BOUNDARY IS BASED ON THE RESULTS OF THE LATEST HYDRAULIC ANALYSIS.



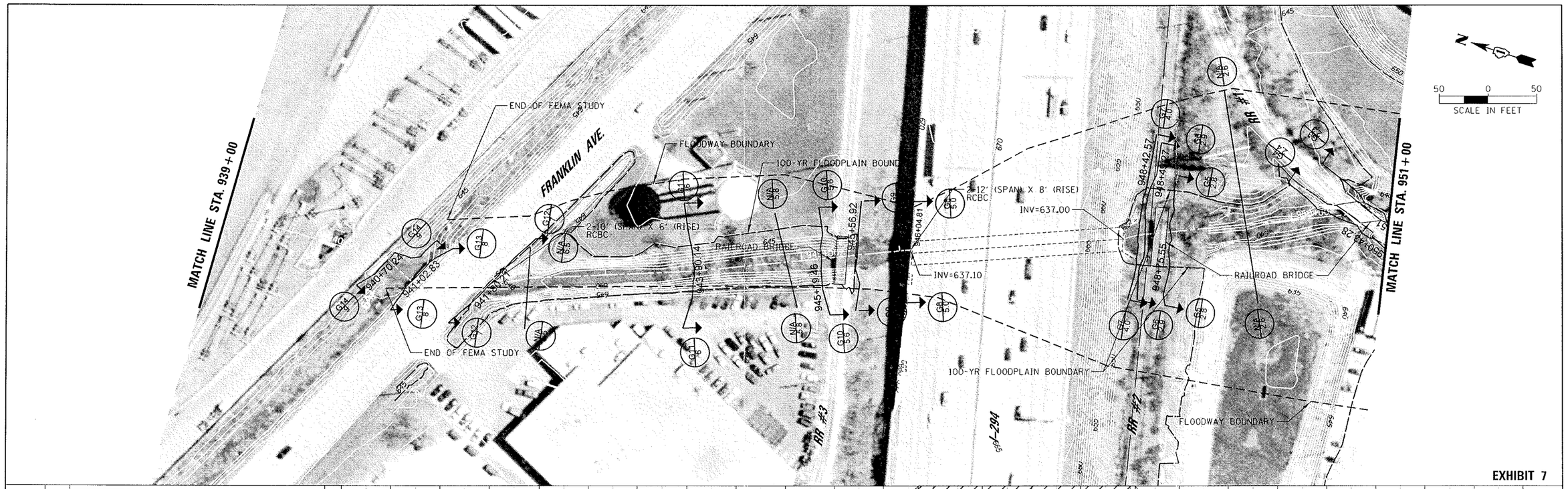
LEGEND

G15/10 SURVEYED X-SEC SURVEY # / HEC-RAS X-SEC ID

SUPPLEMENTAL X-SECTION TAKEN FROM I-FT COOK COUNTY TOPO

EXHIBIT 6

FILE NAME =	USER NAME =	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ELGIN O'HARE WEST BYPASS SILVER CREEK EXISTING CHANNEL PLAN AND PROFILE	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = 10:1	CHECKED -	REVISED -						CONTRACT NO.	
	PLOT DATE = 12/9/2013	DATE	REVISED -		SCALE: SHEET NO. OF SHEETS STA. TO STA.		ILLINOIS FED. AID PROJECT			



ELEVATION BENCHMARKS DATUM: NAVD 1988		
NO.	DESCRIPTION	ELEV.
OM100	O'HARE MONUMENT 100	654.08

NOTES:
1. FLOODWAY BOUNDARY IS COPIED DIRECTLY FROM EFFECTIVE FLOOD INSURANCE RATE MAP.
2. FLOODPLAIN BOUNDARY IS BASED ON THE RESULTS OF THE LATEST HYDRAULIC ANALYSIS.

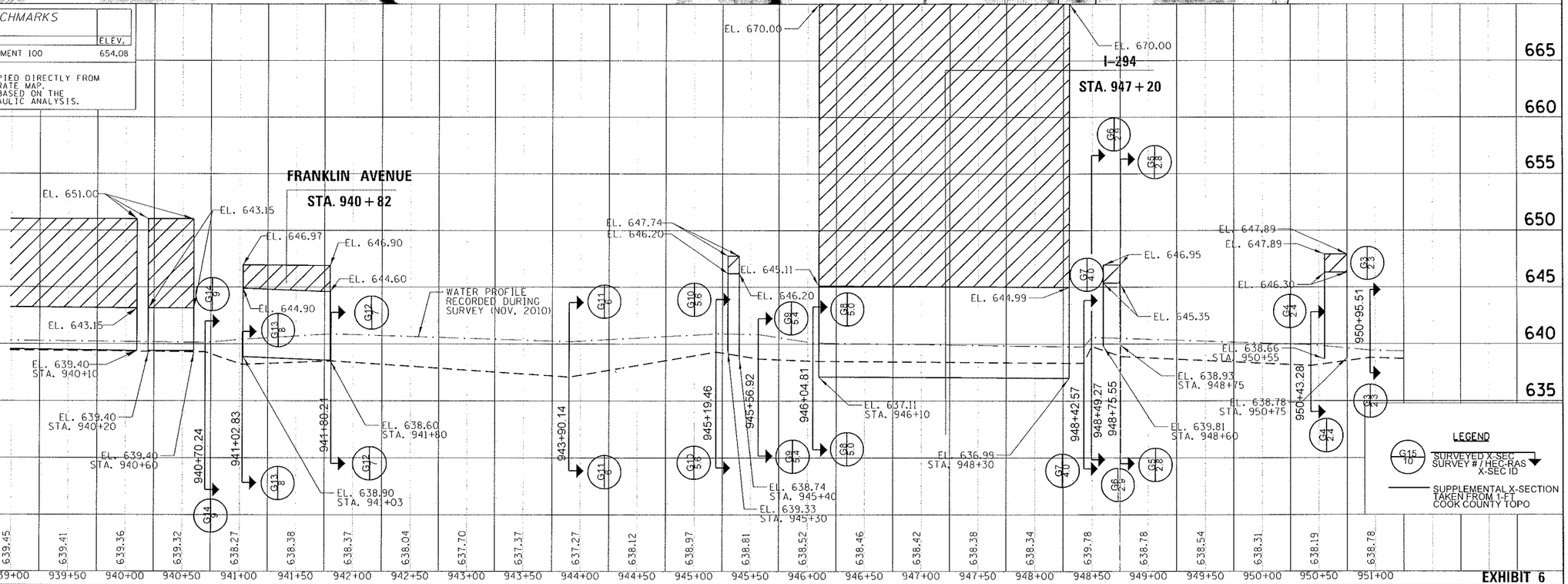


EXHIBIT 6

FILE NAME:	DESIGNED	REVISED
USER NAME:	DRAWN	REVISED
PLOT SCALE:	CHECKED	REVISED
PLOT DATE:	DATE	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELGIN O'HARE WEST BYPASS
SILVER CREEK
EXISTING CHANNEL PLAN AND PROFILE

SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.

CONTRACT NO.

ILLINOIS FED. AID PROJECT

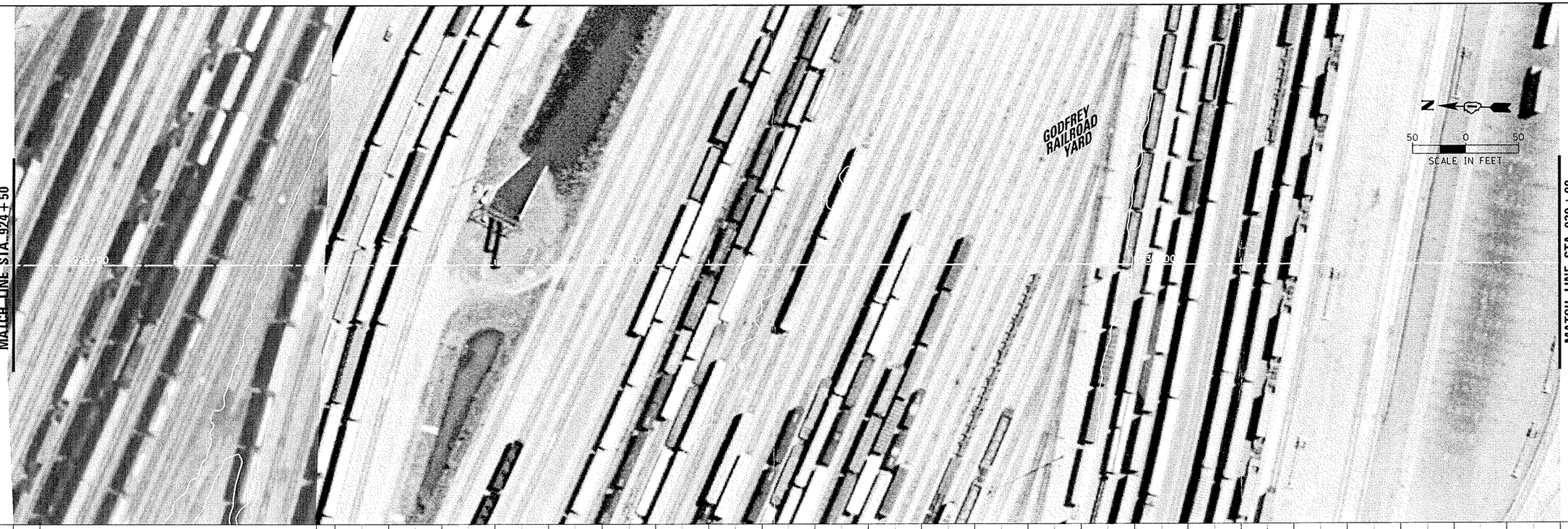


EXHIBIT 7

ELEVATION BENCHMARKS DATUM: NAVD 1988		
NO.	DESCRIPTION	ELEV.
OM100	O'HARE MONUMENT 100	654.08

NOTES:
1. FLOODWAY BOUNDARY IS COPIED DIRECTLY FROM EFFECTIVE FLOOD INSURANCE RATE MAP.
2. FLOODPLAIN BOUNDARY IS BASED ON THE RESULTS OF THE LATEST HYDRAULIC ANALYSIS.

655
650
645
640
635
630
625
620
615

WATER PROFILE RECORDED DURING SURVEY (NOV, 2010)

LEGEND

G15 / 10 — SURVEYED X-SEC, SURVEY # / HEC-RAS X-SEC ID

SUPPLEMENTAL X-SECTION TAKEN FROM 1-FT COOK COUNTY TOPO

640.75 640.71 640.66 640.62 640.57 640.53 640.48 640.44 640.39 640.35 640.31 640.26 640.22 640.17 640.13 640.08 640.04 639.99 639.95 639.90 639.86 639.81 639.77 639.72 639.68 639.63 639.59 639.54 639.50 639.45

924+50 925+00 925+50 926+00 926+50 927+00 927+50 928+00 928+50 929+00 929+50 930+00 930+50 931+00 931+50 932+00 932+50 933+00 933+50 934+00 934+50 935+00 935+50 936+00 936+50 937+00 937+50 938+00 938+50 939+00

EXHIBIT 6

FILE NAME:	USER NAME:	DESIGNED	REVISED
		DRAWN	REVISED
	PLOT SCALE: 10:1	CHECKED	REVISED
	PLOT DATE: 12/9/2011	DATE	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELGIN O'HARE WEST BYPASS
SILVER CREEK
EXISTING CHANNEL PLAN AND PROFILE

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.

CONTRACT NO.

ILLINOIS FED. AID PROJECT

EXHIBIT 7

ELEVATION BENCHMARKS DATUM: NAVD 1988		
NO.	DESCRIPTION	ELEV.
OM100	O'HARE MONUMENT 100	654.08

NOTES:
1. FLOODWAY BOUNDARY IS COPIED DIRECTLY FROM EFFECTIVE FLOOD INSURANCE RATE MAP.
2. FLOODPLAIN BOUNDARY IS BASED ON THE RESULTS OF THE LATEST HYDRAULIC ANALYSIS.

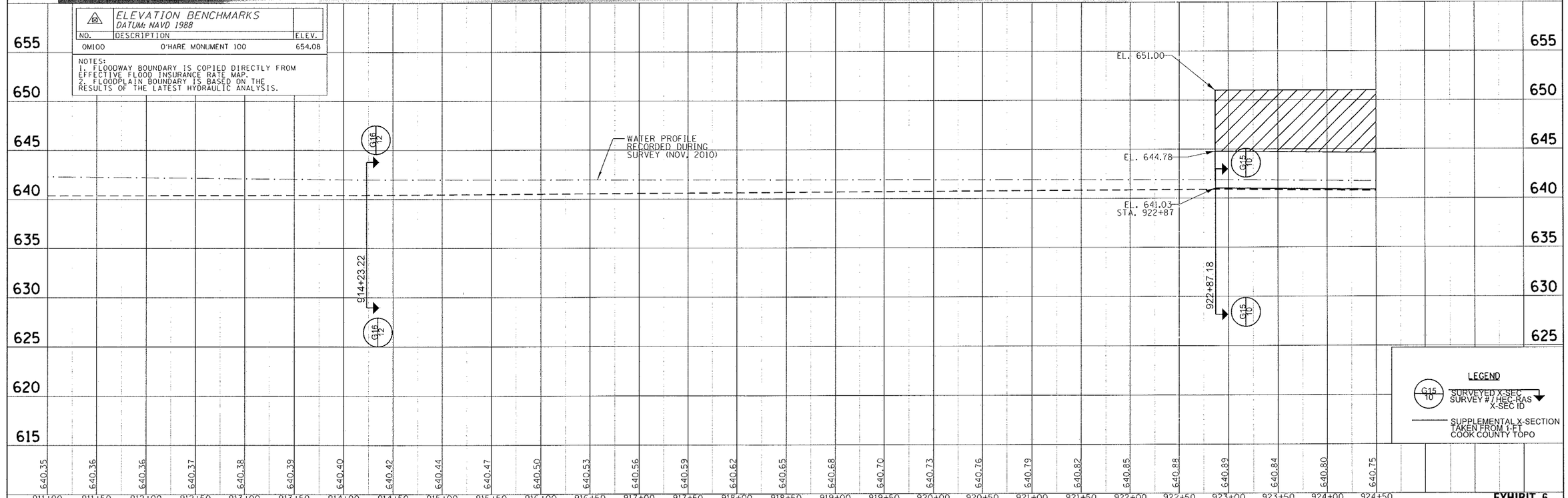


EXHIBIT 6

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		DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELGIN O'HARE WEST BYPASS
SILVER CREEK
EXISTING CHANNEL PLAN AND PROFILE

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.

CONTRACT NO.

ILLINOIS FED. AID PROJECT

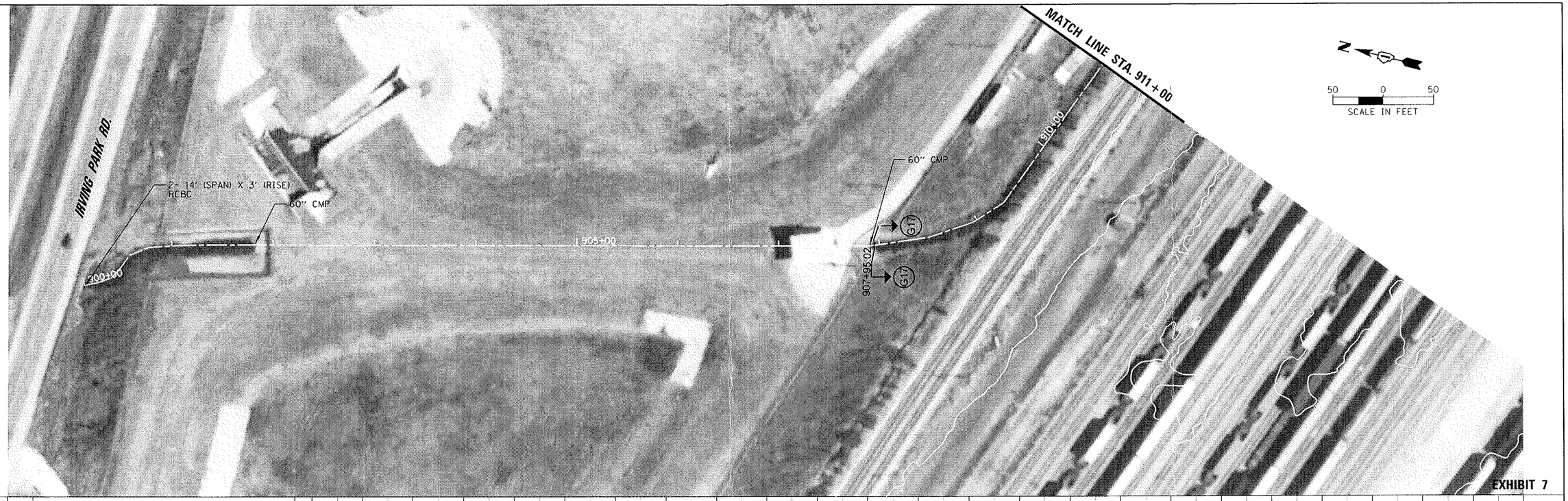
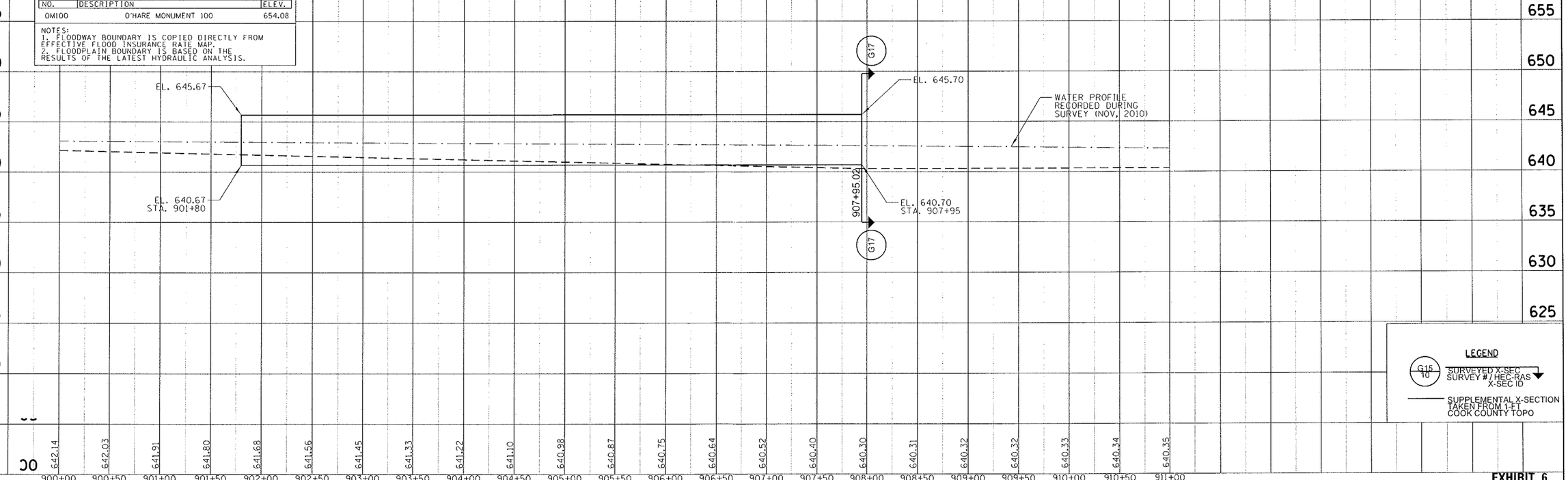


EXHIBIT 7

ELEVATION BENCHMARKS (DATUM: NAVD 1988)		
NO.	DESCRIPTION	ELEV.
OM100	O'HARE MONUMENT 100	654.08

NOTES:
1. FLOODWAY BOUNDARY IS COPIED DIRECTLY FROM EFFECTIVE FLOOD INSURANCE RATE MAP.
2. FLOODPLAIN BOUNDARY IS BASED ON THE RESULTS OF THE LATEST HYDRAULIC ANALYSIS.



LEGEND

G15 / 10 — SURVEYED X-SEC / SURVEY # / HEC-RAS X-SEC ID

SUPPLEMENTAL X-SECTION TAKEN FROM 1-FT COOK COUNTY TOPO

EXHIBIT 6

FILE NAME:	USER NAME:	DESIGNED -	REVISED -
N:\Jobs\... Elgin O'Hare West Bypass TIER 2\...\Sheets\DIEGW02.dgn		DRAWN -	REVISED -
	PLOT SCALE: 100	CHECKED -	REVISED -
	PLOT DATE: 13 A JUN	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELGIN O'HARE WEST BYPASS
SILVER CREEK
EXISTING CHANNEL PLAN AND PROFILE

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.

CONTRACT NO.

ILLINOIS FED. AID PROJECT

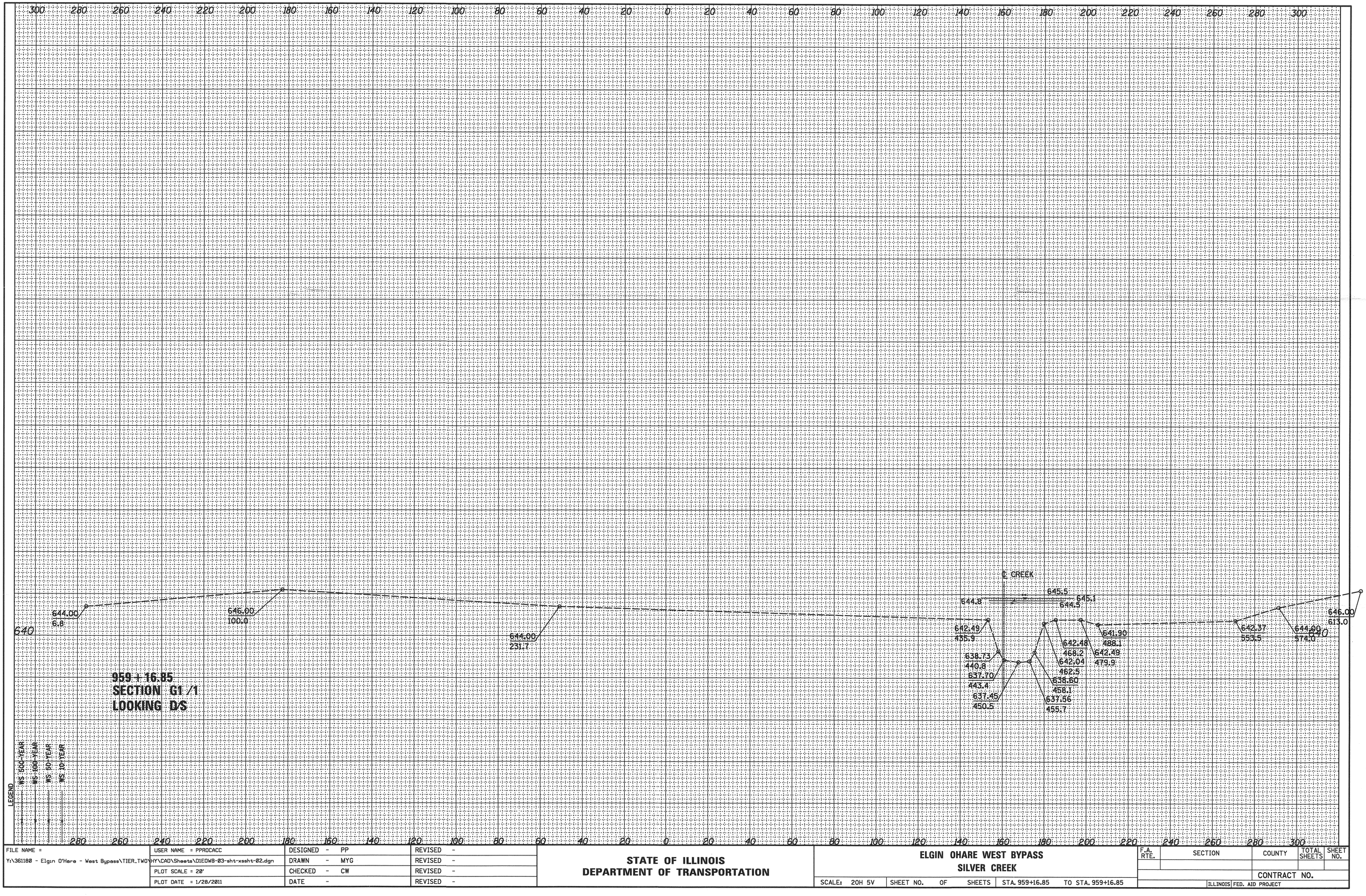
Tab 6

SECTION 6

CROSS SECTION PLOTS
STRUCTURE OPENING PLOTS

FINAL SURVEY	BY	DATE
SURVEYED		
PLOTTED		
NOTE BOOK	TOTAL AREA	
NO.	AREAS CHECKED	

ORIGINAL SURVEY	BY	DATE
SURVEYED		
PLOTTED		
NOTE BOOK	TOTAL AREA	
NO.	AREAS CHECKED	



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		DRAWN - MYG	REVISED -
	PLOT SCALE = 20'	CHECKED - CW	REVISED -
	PLOT DATE = 1/28/2011	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELGIN OHARE WEST BYPASS
SILVER CREEK

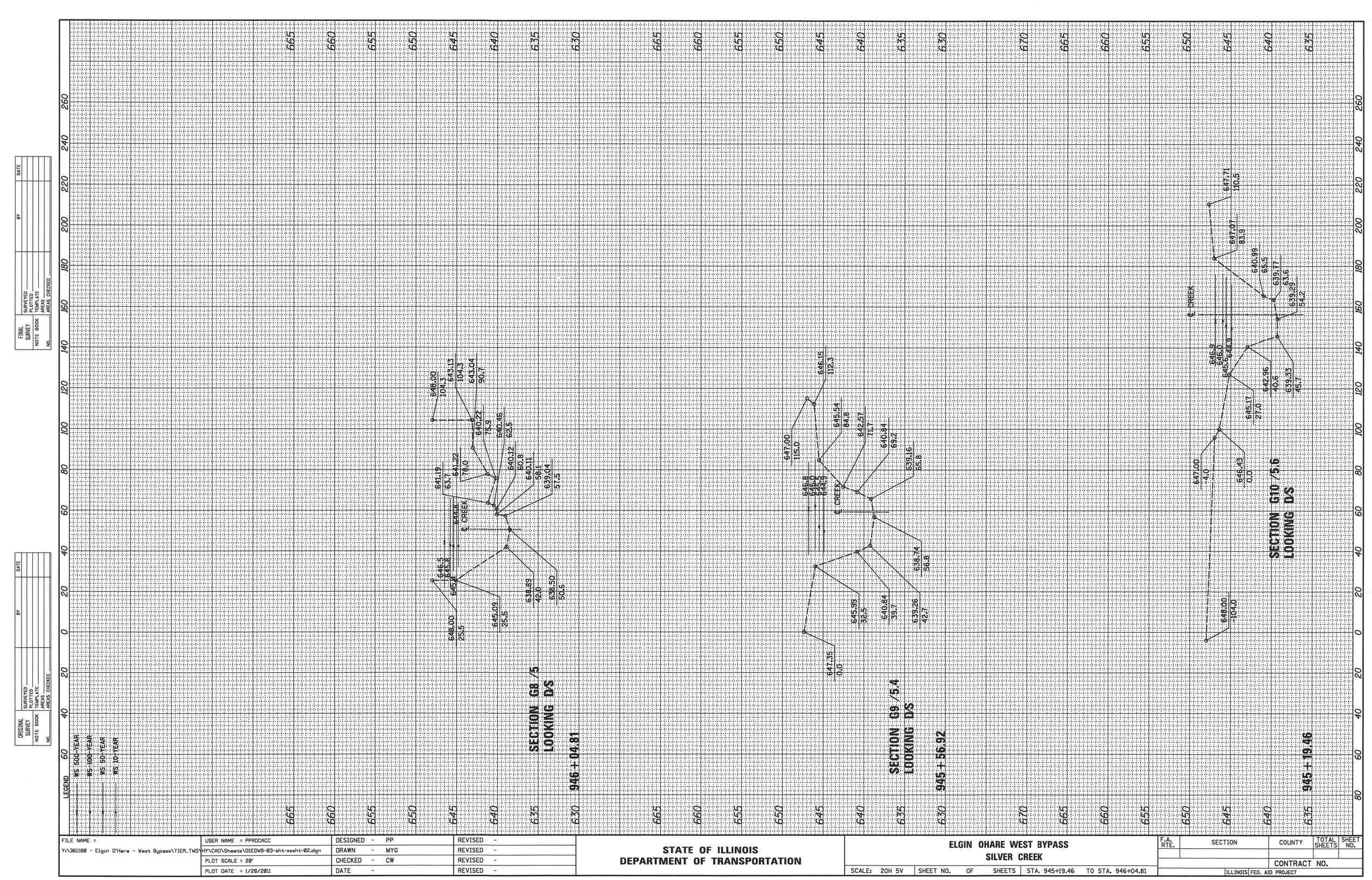
SCALE: 20H 5V | SHEET NO. OF SHEETS | STA. 959+16.85 | TO STA. 959+16.85

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		

FINAL SURVEY	SURVEYED	BY	DATE
	PLOTTED		
NOTE BOOK	TOPO DATE		
	AREAS		
NO.	AREAS CHECKED		

ORIGINAL SURVEY	SURVEYED	BY	DATE
	PLOTTED		
NOTE BOOK	TOPO DATE		
	AREAS		
NO.	AREAS CHECKED		

LEGEND
- WS 500-YEAR
- WS 100-YEAR
- WS 50-YEAR
- WS 10-YEAR



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	PLOT DATE = 1/28/2011	CHECKED - CW	REVISED -
		DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELGIN OHARE WEST BYPASS
SILVER CREEK

SCALE: 20H 5V | SHEET NO. OF SHEETS | STA. 945+19.46 TO STA. 946+04.81

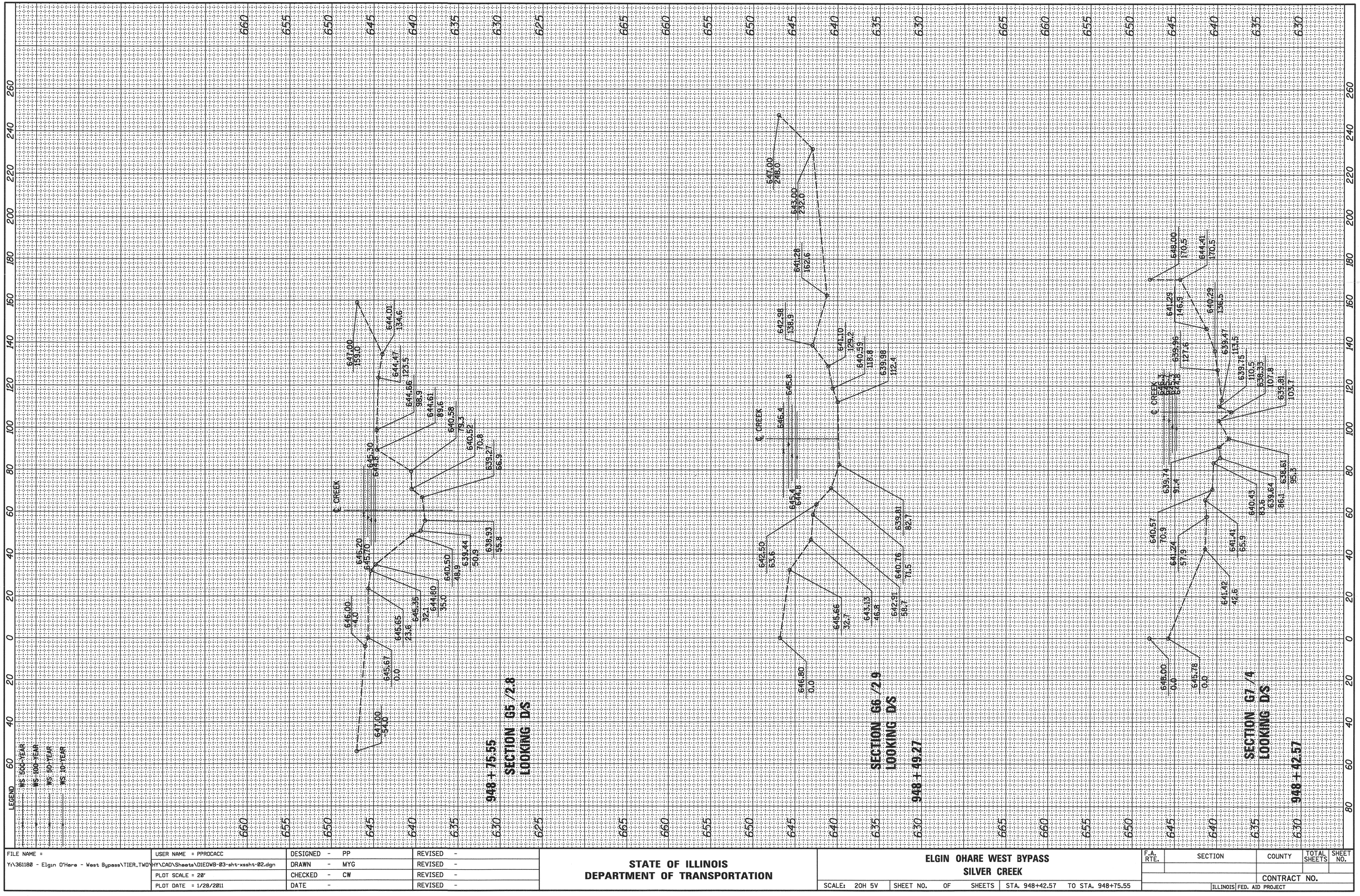
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.

CONTRACT NO.

ILLINOIS | FED. AID PROJECT

FINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
	PLOTTED		
	TYING SITE		
	AREAS		
NO.	AREAS CHECKED		

ORIGINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
	PLOTTED		
	TYING SITE		
	AREAS		
NO.	AREAS CHECKED		



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		DRAWN - MYG	REVISED -
	PLOT SCALE = 20'	CHECKED - CW	REVISED -
	PLOT DATE = 1/28/2011	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELGIN OHARE WEST BYPASS
SILVER CREEK

SCALE: 20H 5V | SHEET NO. OF SHEETS | STA. 948+42.57 TO STA. 948+75.55

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			

FINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
	PLOTTED		
	TOPO PLOTTED		
	AREAS		
NO.	AREAS CHECKED		

ORIGINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
	PLOTTED		
	TOPO PLOTTED		
	AREAS		
NO.	AREAS CHECKED		

LEGEND
WS 500-YEAR
WS 100-YEAR
WS 50-YEAR
WS 10-YEAR

943+90.14
SECTION G11/6
LOOKING D/S

941+80.21
SECTION G12/7
LOOKING D/S

941+02.03
SECTION G13/8
LOOKING D/S

940+70.24
SECTION G14/9
LOOKING D/S

€ CREEK

FILE NAME = Y:\361180 - Elgin O'Hare - West Bypass\TIER_TWO\HY\CAD\Sheets\DIEOWB-03-sht-xssht-02.dgn	USER NAME = PPROCACC	DESIGNED - PP
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	PLOT DATE = 1/28/2011	CHECKED - CW
		DATE -

REVISED	-
REVISED	-
REVISED	-
REVISED	-

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELGIN OHARE WEST BYPASS
SILVER CREEK

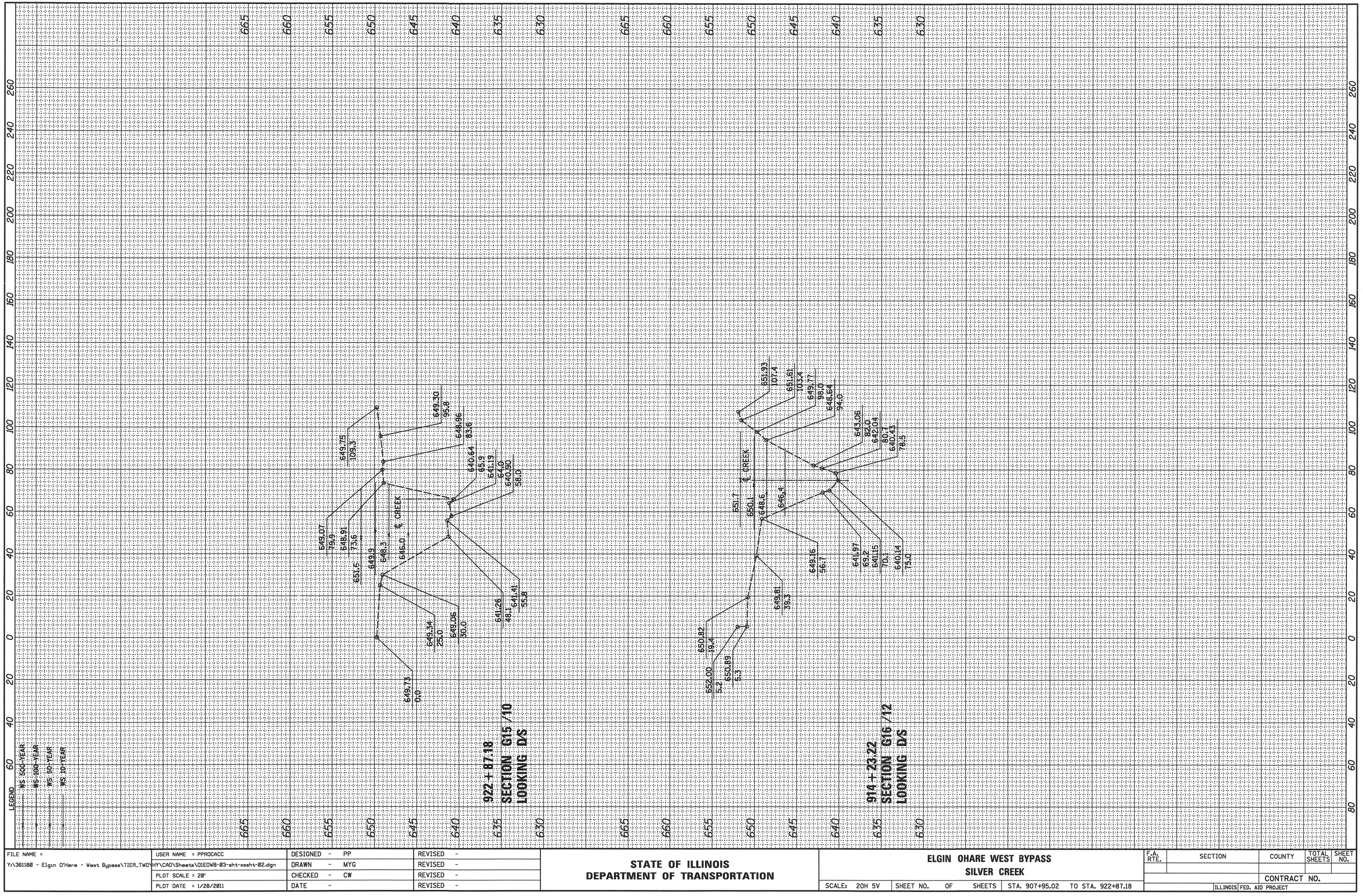
SCALE: 20H 5V | SHEET NO. OF SHEETS | STA. 940+70.24 TO STA. 943+90.14

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.

CONTRACT NO.
ILLINOIS FED. AID PROJECT

FINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
	PLOTTED		
	TYPED/CK'D		
	AREAS		
NO.	AREAS CHECKED		

ORIGINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
	PLOTTED		
	TYPED/CK'D		
	AREAS		
NO.	AREAS CHECKED		



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		DRAWN - MYG	REVISED -
	PLOT SCALE = 20'	CHECKED - CW	REVISED -
	PLOT DATE = 1/28/2011	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELGIN OHARE WEST BYPASS
SILVER CREEK

SCALE: 20H 5V | SHEET NO. OF SHEETS | STA. 907+95.02 TO STA. 922+87.18

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			

FINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
	PLOTTED		
	TOPO ADJ'D		
	AREAS		
NO.	AREAS CHECKED		

ORIGINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
	PLOTTED		
	TOPO ADJ'D		
	AREAS		
NO.	AREAS CHECKED		

LEGEND
WS 500-YEAR
WS 100-YEAR
WS 50-YEAR
WS 10-YEAR

SECTION G1 /2
LOOKING D/S
953+65.80

SECTION G2 /2
LOOKING D/S

SECTION G3 /2.3
LOOKING D/S
950+95.51

SECTION G4 /2.4
LOOKING D/S
950+43.28

FILE NAME = Y:\361180 - Elgin O'Hare - West Bypass\TIER_TWO\HY\CAD\Sheets\D1EOWB-03-sht-xssht-02.dgn	USER NAME = PPROCACC	DESIGNED - PP	REVISED -
		DRAWN - MYG	REVISED -
	PLOT SCALE = 20'	CHECKED - CW	REVISED -
	PLOT DATE = 1/28/2011	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELGIN OHARE WEST BYPASS
SILVER CREEK

SCALE: 20H 5V | SHEET NO. OF SHEETS | STA. 950+43.28 TO STA. 953+65.80

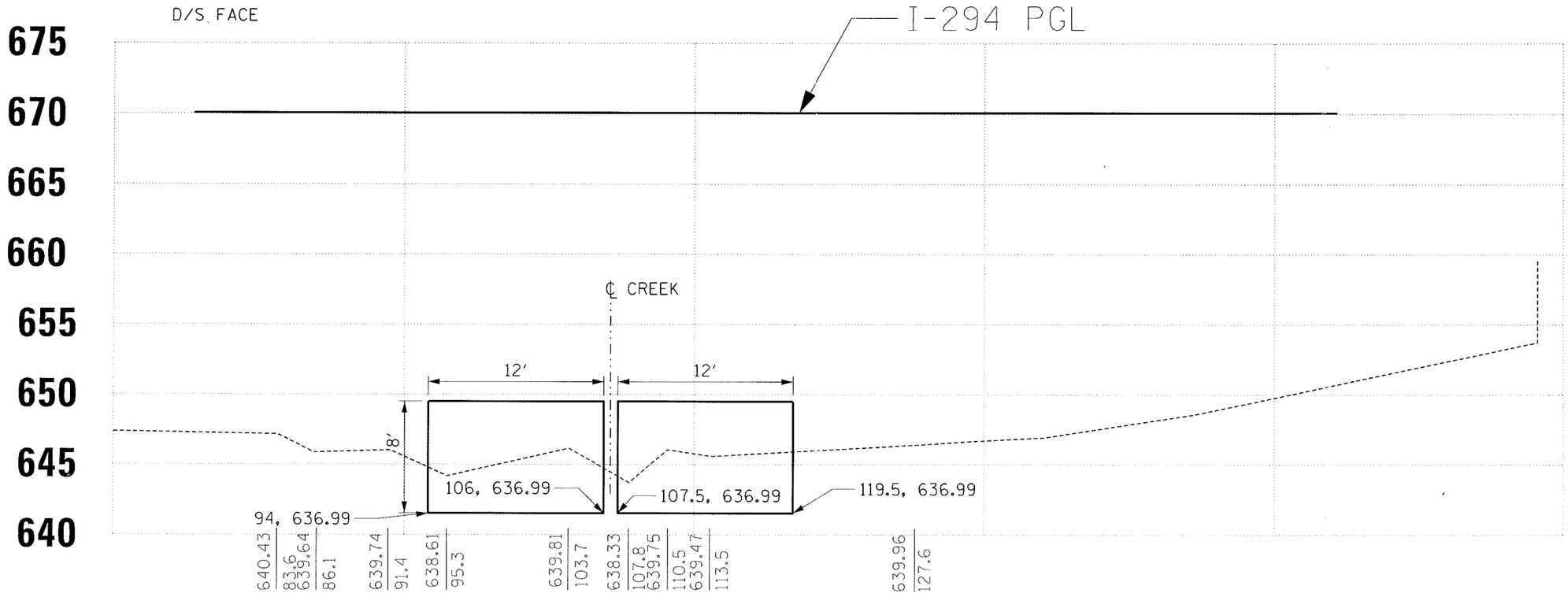
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.

CONTRACT NO.

ILLINOIS FED. AID PROJECT

NOTE:

CULVERT CONTAINS 12"-18" OF SILT. EXACT DEPTH NOT MEASURED DURING SURVEY.



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		DRAWN - MG	REVISED
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	PLOT DATE = 12/12/2011	DATE 12/12/2011	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

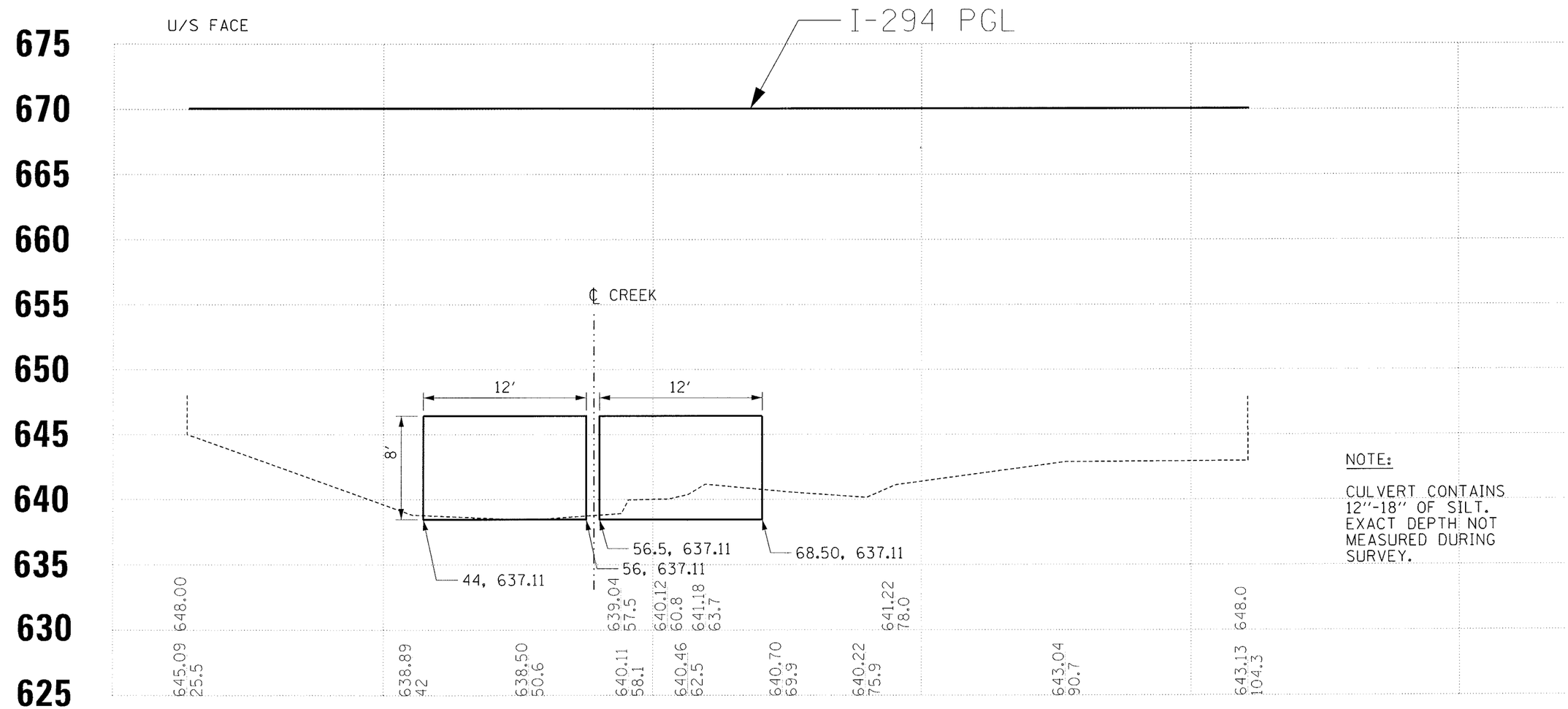
ELGIN O'HARE – WEST BYPASS
I-294 OVER SILVER CREEK

SCALE: $SCALE$ SHEET NO. OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			1	1

CONTRACT NO. 070404

ILLINOIS FED. AID PROJECT



NOTE:

CULVERT CONTAINS 12"-18" OF SILT. EXACT DEPTH NOT MEASURED DURING SURVEY.

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	PLOT DATE = 12/9/2011	DATE - 12/9/2011	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELGIN O'HARE – WEST BYPASS
I-294 OVER SILVER CREEK

SCALE: $SCALE$ | SHEET NO. OF SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			1	1

CONTRACT NO. 70404

ILLINOIS FED. AID PROJECT

Tab 7

SECTION 7

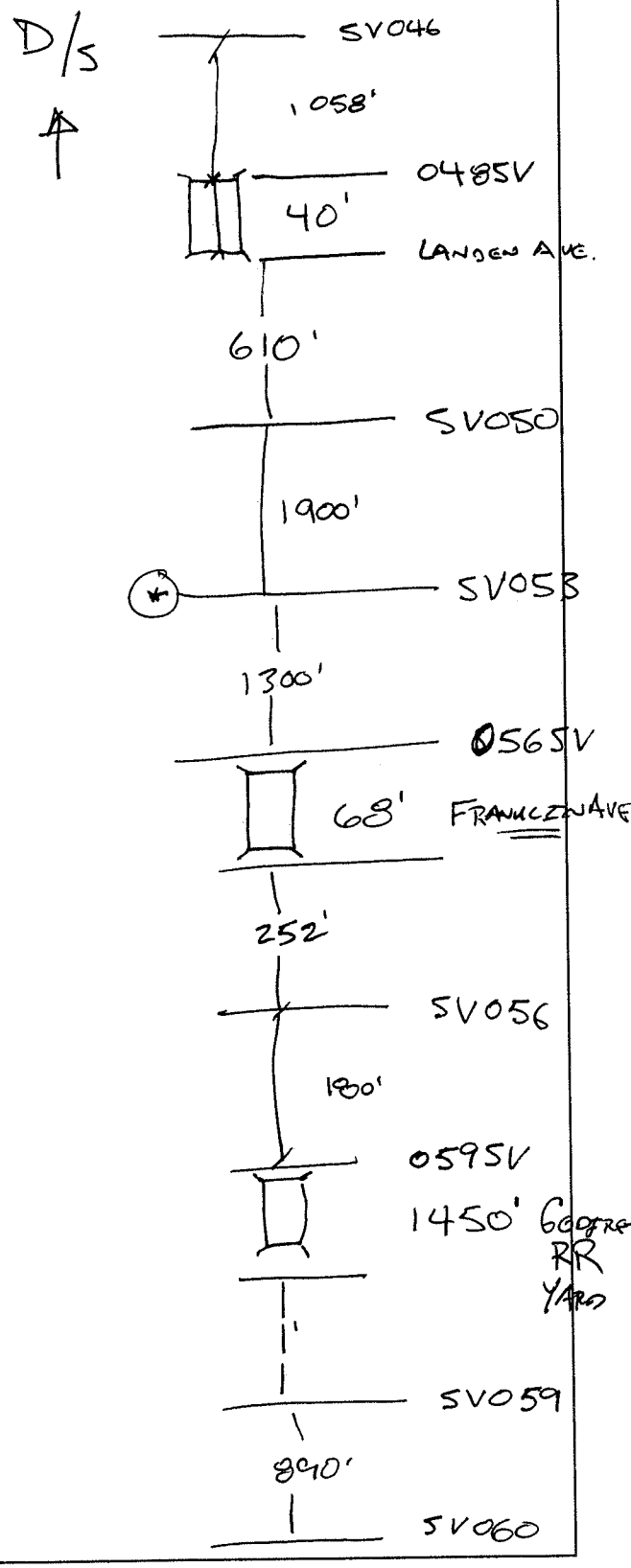
REGULATORY HYDROLOGIC AND HYDRAULIC MODELING

CHRISTOPHER B. BURKE
ENGINEERING, LTD.
9575 West Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500 Fax (847) 823-0520

JOB 07-404 - SILVER CREEK WSP-2
SHEET NO. 1 OF 1
CALCULATED BY DCO DATE
CHECKED BY DATE
SCALE

STARTING WSE @ XS SV046
10, 50, 100, 500

EFFECTIVE WSP-2 SCHEMATIC



WSP2 XEQ
REV 03/11/74

80/80 LIST OF INPUT DATA

```
WSP2
TITLE     DES PLAINES RIVER WATER SHED SILVER CREEK TRIB
DISCHARGE -1.0      10.       50.       100.      500.
OUTPUT    S
START     SV000     619.4     619.4     619.4     619.4
TRIB      SV076
COMMENT   DATA FROM FUTURE W/O PROJECT
COMMENT   LISLE STUDY ASSUMES DEEP TUNNEL IN PLACE
REACH     SV000     10.60     100.      100.      43560.
REACH     SV002     10.58     1150.     1120.0    43560.
REACH     SV006     10.46     1750.0    1710.0    43560.
ROAD      008SV     2.70      1250.0    1220.0              10.24
REACH     SV008     10.24     48.0      48.0      43560.
ROAD      014SV     2.70      2652.0    2502.0                    9.91
REACH     SV014     9.91      42.0      42.0      43560.
ROAD      017SV     2.70      1908.0    1558.0                    9.68
REACH     SV017     9.68      189.0     189.0     43560.0
REACH     SV019     9.38      841.0     711.0     43560.0
ROAD      020SV     1.00      1.0       1.0                       9.18
REACH     SV021     9.18      5.0       5.0       43560.0
ROAD      022SV     2.70      112.      100.                      9.08
COMMENT   DATA FROM FRANKLIN PARK EIS
REACH     SV022     9.59      3.0       3.0       43560.0
ROAD      024SV     2.70      1300.0    1300.0                    9.33
REACH     SV025     9.20      398.0     388.0     43560.0
COMMENT   DATA BETWEEN SV026 AND SCOTT TAKEN FROM STANLEY SURVEY
REACH     SV026     9.16      1060.     1060.
ROAD      PALMER    2.7       40.       40.
REACH     SV028     9.14      40.       40.
REACH     SV029     9.08      1060.0    1060.0    43560.0
REACH     SV030     8.91      560.      560.
ROAD      FULLERTON 2.7       40.       40.
REACH     SV30A     8.92      80.       80.
REACH     SV031     8.82      420.      420.
ROAD      HERRICK   2.7       20.       20.
REACH     SV032     8.72      280.0     280.0     43560.0
ROAD      RICHARD   2.7       720.      710.
REACH     SV034     8.58      60.       50.
ROAD      SCOTT     2.70      900.0     890.0                     8.43
REACH     SV035     8.43      5.0       5.0       43560.0
ROAD      037SV     2.7       585.0     585.0                     8.13
REACH     SV038     7.79      283.0     233.0     43560.0
REACH     SV042     7.40      2000.0    1450.0    43560.0
ROAD      046SV     2.70      2400.0    2220.0                    6.79
REACH     SV046     6.79      92.0      92.0      43560.0
```

WSP2 XEQ
REV 03/11/74

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

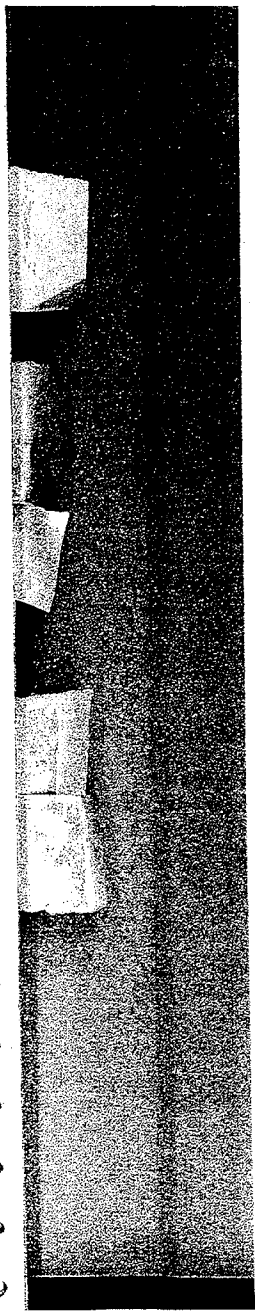
(17)

80/80 LIST OF INPUT DATA

ROAD	048SV	2.7	1058.0	988.0			6.73	TRI-STATE
REACH	SV050	6.62	610.	640.		43560.0		
REACH	SV053	6.42	1900.0	1920.0		43560.0		
ROAD	056SV	2.70	1300.0	1250.0			6.12	FRANKLIN AVE
REACH	SV056	6.12	252.	252.				
ROAD	059SV	1.0	180.0	180.0			5.19	600 FEET
REACH	SV059	5.19	1.0	1.0		43560.		
REACH	SV060	5.02	890.	890.				
REACH	SV062	4.65	870.	870.				
COMMENT	DATA FROM BENSENVILLE DITCH STUDY							
ROAD	064SV	2.70	430.	430.			4.68	IP
REACH	SV064		3.89	100.0	100.0	100.0		
REACH	SV066		3.75	750.0	750.0	750.0		
REACH	SV069		3.55	2150.0	2150.0	2150.0		
ROAD	071SV		2.7	1260.0	1260.0			
REACH	SV076		2.36	2340.0	2340.0	2340.0		
REACH	SV077		2.60	900.0	900.0	900.0		
ROAD	078SV		2.7	400.0	400.0			
REACH	SV080		2.36	1000.0	1000.0	1000.0		
ROAD	082SV		2.7	670.0	670.0			
REACH	SV082		2.20	10.0	10.0	10.0		
REACH2	SV080		2.0					
ROAD	085SV		2.7	1400.0	1400.0			
REACH	SV085		2.06	400.0	400.0	400.0		
ROAD	087SV		2.7	680.0	680.0			
REACH	SV087		2.01	300.0	300.0	300.0		
ROAD	088SVA		2.7	350.0	350.0			
REACH	SV088A		1.96	20.0	20.0	20.0		
ROAD	088SVB		2.7	75.0	75.0			
REACH	SV088B		1.96	30.0	30.0	30.0		
ROAD	088SVC		2.7	50.0	50.0			
REACH	SV088C		1.96	50.0	50.0	50.0		
ROAD	088SVD		2.7	25.0	25.0			
REACH	SV089		1.40	500.0	500.0	500.0		
ROAD	090SVA		2.7	380.0	380.0			
REACH	SV090		1.35	50.0	50.0	50.0		
ROAD	090SVB	2.7		50.0	50.0			
REACH	SV091		1.31	350.0	350.0	350.0		
ROAD	091SV		2.7	100.0	100.0			
REACH	SV092		1.28	500.0	500.0	500.0		
REACH	SV094		1.09	600.0	600.0	600.0		
ROAD	094SV		2.7	400.0	400.0			
REACH	SV095		1.02	200.0	200.0	200.0		
FLOW-FREQ	SV000	1140.	852.	710.	475.			
FLOW-FREQ	SV002	1135.	851.	705.	473.			

Yellowpages.com - Fallam creek

Scott
Howis
Park
Sarah
Riverside
Driveway
Mannheim
Hyde Park X
Granville
Grand
R.R
Cullerton
R.R
Belmont
R.R
R.R
I-294
R.R
X R.R
Franklin
R.R



80/80 LIST OF INPUT DATA

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FLOW-FREQ SV006   1130.    845.    702.    470.
FLOW-FREQ SV008   1120.    832.    700.    460.
FLOW-FREQ SV014   1100.    814.    690.    456.
FLOW-FREQ SV017   1080.    801.    680.    445.
FLOW-FREQ SV019   1040.    790.    670.    440.
FLOW-FREQ SV021   1040.    790.    670.    440.
FLOW-FREQ SV022   1040.    790.    670.    440.
FLOW-FREQ SV025   1020.    780.    650.    430.
FLOW-FREQ SV026   1015.    775.    650.    430.
FLOW-FREQ SV028   1015.    775.    650.    430.
FLOW-FREQ SV029   1010.    770.    645.    425.
FLOW-FREQ SV030   1005.    765.    645.    425.
FLOW-FREQ SV30A   1005.    765.    645.    425.
FLOW-FREQ SV031   1000.    760.    640.    420.
FLOW-FREQ SV032   1000.    760.    640.    420.
FLOW-FREQ SV034   1000.    760.    640.    420.
FLOW-FREQ SV035    990.    750.    630.    410.
FLOW-FREQ SV038    955.    720.    605.    400.
FLOW-FREQ SV042    935.    705.    595.    385.
FLOW-FREQ SV046    890.    670.    570.    370.
FLOW-FREQ SV050    880.    660.    560.    360.
FLOW-FREQ SV053    875.    655.    550.    355.
FLOW-FREQ SV056    850.    640.    535.    350.
FLOW-FREQ SV059    790.    585.    490.    310.
FLOW-FREQ SV060    775.    570.    485.    300.
FLOW-FREQ SV062    760.    560.    470.    295.
FLOW-FREQ SV064            750.0   545.0   460.0   290.0
FLOW-FREQ SV066            730.0   530.0   455.0   280.0
FLOW-FREQ SV069            700.0   510.0   450.0   280.0
FLOW-FREQ SV076            700.0   505.0   450.0   275.0
SEGMENT   SV000   1        D       100.
NVALUE    0.070
SEGMENT   SV000   2        C       500.
NVALUE    0.070
SEGMENT   SV000   3        D       700.
NVALUE    0.070
SECTION   SV000
                  0.0     623.5   100.0   623.0   300.0   613.2SV000  1 3
                375.0     607.2   410.0   610.4   500.0   612.0SV000  2 3
                550.0     624.4   700.0   624.4           SV000  3 3
ENDTABLE
SEGMENT   SV002   1        D       235.0
NVALUE    .060
SEGMENT   SV002   2        C       295.0
NVALUE    .051
```

----------80/80 LIST OF INPUT DATA----------

```
SEGMENT  SV002     3        D          450.0
 NVALUE  .060
 SECTION SV002
            0.0     638.6     48.0     638.6     48.0    623.8SV002  110
           88.0     621.8    115.0     621.8    150.0    623.6SV002  210
          170.0     638.6    170.0     623.8    200.0    623.3SV002  310
          200.0     638.6    235.0     621.6    247.0    613.9SV002  410
          254.0     610.5    256.0     609.2    262.0    608.7SV002  510
          265.0     608.4    272.0     608.7    274.0    609.2SV002  610
          277.0     613.4    295.0     621.7    303.0    624.0SV002  710
          345.0     625.5    345.0     638.2    373.0    638.2SV002  810
          373.0     627.3    390.0     626.6    403.0    622.9SV002  910
        416.0     622.6     450.0     623.2
 ENDTABLE
SEGMENT  SV006     1        D          328.0
 NVALUE  .060
SEGMENT  SV006     2        C          403.0
 NVALUE  .051
SEGMENT  SV006     3        D          606.0
 NVALUE  .060
 SECTION SV006
            0.0     624.4    100.0     624.9    140.0    624.1SV006  110
          163.0     622.6    173.0     622.0    200.0    622.4SV006  210
          214.0     622.0    250.0     623.6    285.0    623.3SV006  310
          324.0     621.3    328.0     620.1    346.0    612.8SV006  410
          347.0     612.2    350.0     611.9    356.0    611.8SV006  510
          365.0     611.9    367.0     612.2    376.0    615.7SV006  610
          389.0     617.7    403.0     622.3    438.0    623.7SV006  710
          438.0     637.7    468.0     637.7    468.0    624.1SV006  810
          513.0     622.5    540.0     622.5    576.0    626.7SV006  910
          576.0     637.7    606.0     637.7    606.0    626.9SV006 1010
 ENDTABLE
 BPR     008SV     B        3
 GIRDER  624.92    624.12   25.       0.6       2.7      0.030
         351.0     627.5    351.0     624.12    400.0    624.12
         400.0     627.5
 ENDTABLE
 SECTION 008SV
            0.0     628.8    100.0     628.4    200.0    628.0008SV  1  6
          300.0     627.4    351.0     627.5    351.0    624.1008SV  2  6
          351.0     616.4    357.0     615.7    370.0    614.9008SV  3  6
          385.0     615.6    400.0     617.2    400.0    624.1008SV  4  6
          400.0     627.5    500.0     626.7    600.0    626.3008SV  5  6
          650.0     626.4                                 008SV      6  6
 ENDTABLE
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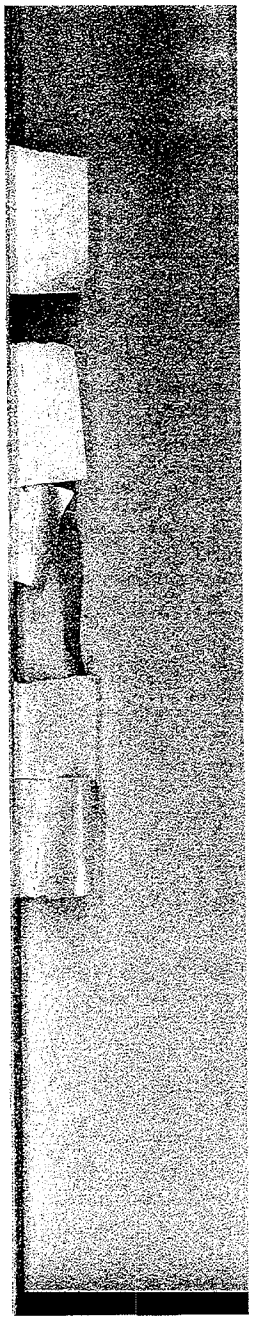

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----------80/80 LIST OF INPUT DATA----------
SEGMENT  SV008   1        D        87.0
NVALUE   .050
SEGMENT  SV008   2        C        142.0
NVALUE   .045
SEGMENT  SV008   3        D        530.0
NVALUE   .070
SECTION  SV008
          0.0    644.3    30.0    644.3    30.0    630.8SV008  1 10
         50.0    630.3    83.0    629.3    87.0    628.6SV008  2 10
        103.0    618.8   106.0    616.4   108.0    615.4SV008  3 10
        114.0    614.9   120.0    615.2   122.0    616.4SV008  4 10
        123.0    619.1   142.0    628.3   146.0    628.7SV008  5 10
        196.0    628.7   196.0    644.3   231.0    642.7SV008  6 10
        231.0    628.8   275.0    626.9   303.0    626.9SV008  7 10
        346.0    628.8   346.0    642.7   378.0    642.7SV008  8 10
        378.0    629.3   400.0    629.2   450.0    628.5SV008  9 10
        500.0    628.1   515.0    626.6   530.0    627.1SV008 10 10
ENDTABLE
BPR      014SV    A        3
GIRDER   623.55   622.75   0        0.6      2.7      0.030
         222.0    627.0    222.0    622.75   250.0    622.75
         250.0    626.9
ENDTABLE
SECTION  014SV
          0.0    628.6   100.0    627.8   200.0    627.0014SV  1 5
        222.0    627.0   222.0    622.7   222.0    619.4014SV  2 5
        227.0    619.3   239.0    618.3   244.0    618.8014SV  3 5
        250.0    618.3   250.0    622.7   250.0    626.9014SV  4 5
        300.0    626.4   400.0    626.1   500.0    626.2014SV  5 5
ENDTABLE
SEGMENT  SV014   1        D        266.0
NVALUE   .055
SEGMENT  SV014   2        C        331.0
NVALUE   .042
SEGMENT  SV014   3        D        408.0
NVALUE   .055
SECTION  SV014
          0.0    629.8     6.0    629.2    45.0    628.9SV014  1 9
         95.0    630.8    95.0    645.6   165.0    645.6SV014  2 9
        165.0    630.4   200.0    630.3   263.0    629.8SV014  3 9
        266.0    630.0   284.0    627.1   290.0    620.0SV014  4 9
        291.0    619.4   293.0    618.8   301.0    618.4SV014  5 9
        312.0    618.9   313.0    619.4   315.0    620.9SV014  6 9
        331.0    628.1   346.0    628.9   346.0    645.6SV014  7 9
        376.0    645.6   376.0    628.2   408.0    628.9SV014  8 9
```

----------80/80 LIST OF INPUT DATA----------

```
          408.0     645.6                                        SV014  9 9
 ENDTABLE
 CULV1    017SV     2          41122
 CULV2    3.0       10.0       189.0     622.86    622.72    0.015
 SECTION  017SV
                0.0       629.2      89.0      629.5      89.0      628.5017SV  1 5
              100.0       628.5     200.0      628.4     211.0      628.4017SV  2 5
              211.0       629.0     300.0      629.1     400.0      629.5017SV  3 5
              469.0       629.6     469.0      629.1     483.0      629.3017SV  4 5
              483.0       630.3     500.0      630.3     550.0      630.4017SV  5 5
 ENDTABLE
 SEGMENT  SV017     1          D          184.0
 NVALUE   0.045
 SEGMENT  SV017     2          C          235.0
 NVALUE   0.040
 SEGMENT  SV017     3          D          450.0
 NVALUE   0.60
 SECTION  SV017
             -200.0       631.0      -1.0      629.7     -1.0      644.65V017  1 9
                0.0       644.6     120.0      644.6     120.0      629.7SV017  2 9
              150.0       630.3     163.0      630.5     184.0      630.5SV017  3 9
              192.0       626.2     200.0      625.0     202.0      623.2SV017  4 9
              204.0       622.7     224.0      622.7     226.0      623.2SV017  5 9
              228.0       625.3     235.0      629.2     239.0      629.5SV017  6 9
              250.0       629.2     300.0      629.7     350.0      631.45V017  7 9
              350.0       644.6     450.0      644.6     450.0      631.4SV017  8 9
              480.0       631.5                                     SV017  9 9
 ENDTABLE
 SEGMENT  SV019     1          D          184.0
 NVALUE   .040
 SEGMENT  SV019     2          C          235.0
 NVALUE   .03
 SEGMENT  SV019     3          D          450.0
 NVALUE   .04
 SECTION  SV019
                0.0       644.6     120.0      644.6     120.0      629.7SV019  1 7
              150.0       630.3     163.0      630.5     184.0      630.5SV019  2 7
              192.0       626.2     200.0      625.0     202.0      623.2SV019  3 7
              204.0       622.3     212.0      621.2     224.0      622.0SV019  4 7
              226.0       623.2     228.0      625.3     235.0      629.2SV019  5 7
              239.0       629.5     250.0      629.2     300.0      629.7SV019  6 7
              349.0       631.1     350.0      644.6     450.0      644.6SV019  7 7
 ENDTABLE
 CULV1    020SV     2          12333
 CULV2    9.8                  1300.     622.9     621.0     0.030
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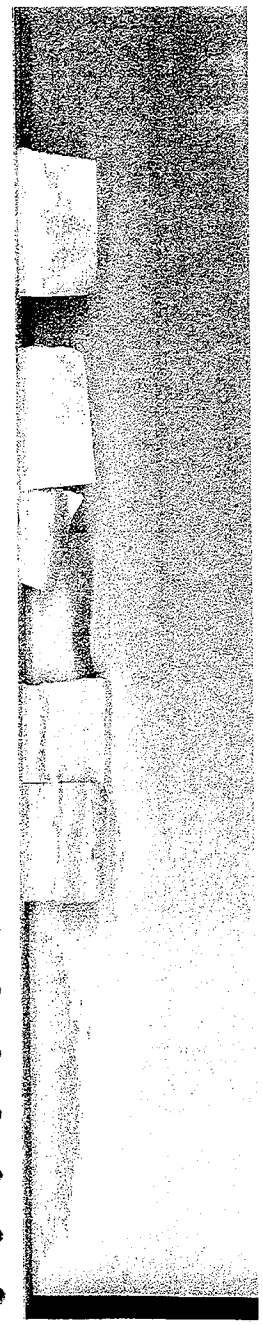

80/80 LIST OF INPUT DATA

```
SECTION   020SV
              0.0     633.4     100.0     633.4     400.0     633.4020SV  1 2
            800.0     633.4                                   020SV  2 2
ENDTABLE
SEGMENT   SV021   1         D         400.0
NVALUE    0.10
SEGMENT   SV021   2         C         460.0
NVALUE    0.075
SEGMENT   SV021   3         D         800.0
NVALUE    0.10
SECTION   SV021
              0.0     634.3     400.0     634.3     412.0     622.1SV021  1 2
            448.0     622.1     460.0     634.3     800.0     634.3SV021  2 2
ENDTABLE
CULV1     022SV   2         41122
CULV2     7.2     12.0      233.0     624.1     622.1     0.025
SECTION   022SV
              0.0     638.5     200.0     638.5     600.0     638.5022SV  1 1
ENDTABLE
SEGMENT   SV022   1         D         360.0
NVALUE    0.060
SEGMENT   SV022   2         C         417.0
NVALUE    0.045
SEGMENT   SV022   3         D         700.0
NVALUE    0.060
SECTION   SV022
              0.0     638.0     100.0     638.6     200.0     638.5SV022  1 5
            300.0     637.2     360.0     636.4     368.0     627.2SV022  2 5
            372.0     624.4     379.0     624.2     383.0     623.8SV022  3 5
            389.0     624.2     393.0     626.2     417.0     640.0SV022  4 5
            500.0     640.8     600.0     639.5     700.0     641.0SV022  5 5
ENDTABLE
CULV1     024SV   3         41111
CULV2     4.98    7.4       52.0      625.5     625.2     0.012
SECTION   024SV
              0.0     634.1     100.0     633.9     200.0     633.5024SV  1 6
            300.0     633.2     400.0     633.0     500.0     632.7024SV  2 6
            600.0     632.7     700.0     632.6     707.5     632.8024SV  3 6
            732.0     632.8     800.0     632.9     900.0     632.8024SV  4 6
           1000.0     633.0    1100.0     633.1    1200.0     633.1024SV  5 6
           1250.0     633.2                                   024SV  6 6
ENDTABLE
SEGMENT   SV025   1         D         699.0
NVALUE    .070
SEGMENT   SV025   2         C         736.0
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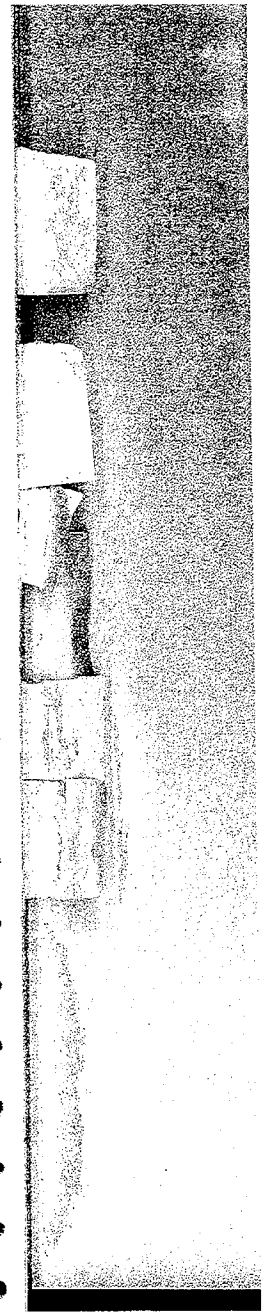
80/80 LIST OF INPUT DATA

```
NVALUE   .045
SEGMENT  SV025    3         D         1640.0
NVALUE   .070
SECTION  SV025
             0.0     637.4    100.0     637.4    200.0     636.5SV025  111
           300.0     634.5    400.0     633.4    500.0     631.7SV025  211
           600.0     632.1    699.0     631.4    707.0     628.6SV025  311
           711.0     626.5    713.0     625.8    721.0     625.6SV025  411
           723.0     626.5    724.0     628.0    729.0     628.6SV025  511
           736.0     632.1    800.0     632.6    900.0     633.4SV025  611
          1000.0     634.3   1100.0     633.9   1200.0     634.7SV025  711
          1295.0     633.8   1301.0     632.7   1306.0     634.0SV025  811
          1333.0     633.9   1339.0     632.9   1345.0     634.0SV025  911
          1385.0     634.5   1385.0     649.9   1408.0     649.9SV025 1011
          1408.0     634.3   1435.0     635.0   1490.0     636.0
          1640.0     636.4
ENDTABLE
SECTION  SV026
             0.0     635.      80.     634.6    186.      633.1
           268.      632.8    332.     633.1    418.      633.2
           477.      631.9    489.     628.3    501.      626.8
           509.      628.8    523.     633.6    542.      634.1
           636.      632.3    777.     633.8    949.      635.2
          1080.      637.9
ENDTABLE
SEGMENT  SV026    1.        D          477.
NVALUE   .15
SEGMENT  SV026    2.        C          523.
NVALUE   .04
SEGMENT  SV026    3.        D         1080.
NVALUE   .15
BPR      PALMER   A         1.
GIRDER   635.     634.7     60.      .6       2.7
           562.     636.5    562.     634.8    593.      634.7
           593.     636.5
ENDTABLE
SECTION  PALMER
             0.0     635.5    106.     634.7    220.      633.4
           301.      633.1    338.     633.2    449.      633.3
           562.      636.5    562.     634.8    562.      627.0
           574.      627.2    593.     627.6    593.      634.7
           593.      636.5    665.     634.5    807.      633.9
           974.      635.4   1109.     637.6
ENDTABLE
SECTION  SV028
```



80/80 LIST OF INPUT DATA

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          0.0     636.8     128.     634.4     269.     633.1
          418.    632.3     528.     632.1     591.     632.3
          611.    629.6     621.     627.4     629.     627.4
          631.    628.8     638.     632.7     655.     634.1
          673.    634.5     770.     632.1     848.     632.6
          929.    633.5     1023.    633.9
ENDTABLE
SEGMENT   SV028   1.        D        591.
NVALUE    .15
SEGMENT   SV028   2.        C        638.
NVALUE    .04
SEGMENT   SV028   3.        D        1023.
NVALUE    .15
SEGMENT   SV029   1         D        746.0
NVALUE    .065
SEGMENT   SV029   2         C        795.0
NVALUE    .030
SEGMENT   SV029   3         D        1550.0
NVALUE    .065
SECTION   SV029
          0.0     638.2     100.0    639.1     130.0    639.2SV029  116
          130.0   654.3     160.0    654.3     160.0    639.6SV029  216
          200.0   639.6     220.0    639.3     240.0    639.3SV029  316
          295.0   640.1     295.0    654.3     353.0    654.3SV029  416
          353.0   638.8     394.0    637.9     448.0    639.1SV029  516
          448.0   652.5     497.0    652.5     497.0    638.7SV029  616
          560.0   637.6     580.0    637.4     635.0    635.9SV029  716
          635.0   652.5     660.0    652.5     660.0    636.0SV029  816
          746.0   635.6     757.0    632.5     763.0    628.0SV029  916
          765.0   627.5     770.0    627.3     774.0    627.5SV029 1016
          776.0   628.0     779.0    630.2     795.0    634.3SV029 1116
          815.0   632.7     914.0    632.7     914.0    647.6SV029 1216
          939.0   647.6     939.0    632.8     990.0    633.0SV029 1316
          1010.0  633.1     1065.0   633.4     1065.0   648.3SV029 1416
          1090.0  648.3     1090.0   633.8     1430.0   636.5SV029 1516
          1450.0  636.7     1500.0   637.2     1550.0   637.5SV029 1616
ENDTABLE
SECTION   SV030
          0.0     636.3     125.     635.7     186.     635.2
          194.    628.0     206.     627.2     212.     627.7
          235.    635.      369.     633.6     452.     632.9
          514.    633.5     660.     633.8     891.     633.8
          1084.   636.9     1322.    639.
ENDTABLE
SEGMENT   SV030   1.        D        186.
```

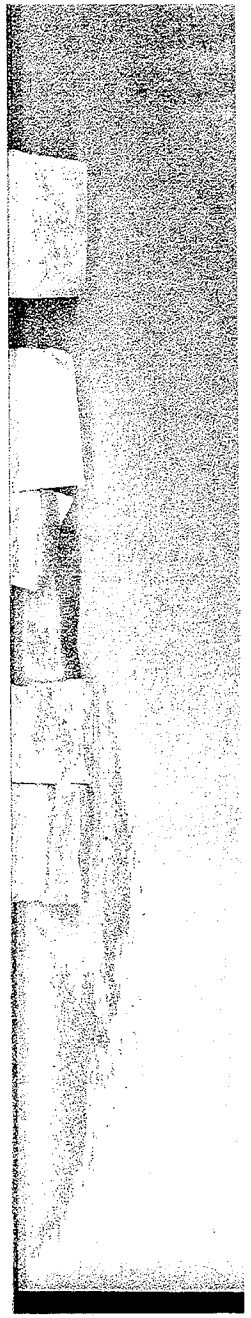
----------80/80 LIST OF INPUT DATA----------

```
NVALUE   .12
SEGMENT  SV030   2.      C       235.
NVALUE   .04
SEGMENT  SV030   3.      D       1322.
NVALUE   .12
CULV1    FULLERTON 2             41111.
CULV2    6.6     12.     107.    627.8   627.5   .012
SECTION  FULLERTON
         0.0     637.7   104.    637.3   180.    637.
         394.    636.9   437.    636.8   522.    636.9
         640.    637.0   881.    637.2   1076.   638.5
         1320.   640.
ENDTABLE
SECTION  SV30A
         0.0     636.4   126.    635.4   202.    634.4
         465.    631.5   469.    627.8   478.    627.4
         485.    627.9   490.    632.2   653.    633.3
         898.    633.8   1090.   636.1   1328.   638.4
ENDTABLE
SEGMENT  SV30A   1.      D       465.
NVALUE   .12
SEGMENT  SV30A   2.      C       490.
NVALUE   .05
SEGMENT  SV30A   3.      D       1328.
NVALUE   .12
SECTION  SV031
         0.0     635.6   172.    634.6   302.    634.1
         320.    633.5   332.    628.9   341.    628.3
         348.    628.8   360.    634.    424.    634.6
         521.    634.6   659.    635.7   702.    636.1
ENDTABLE
SEGMENT  SV031   1.      D       320.
NVALUE   .12
SEGMENT  SV031   2.      C       360.
NVALUE   .065
SEGMENT  SV031   3.      D       702.
NVALUE   .12
BPR      HERRICK A       3.      7.
PIER     627.5   1.0
GIRDER   633.    632.7   0.      .6      2.7
         313.    635.3   313.    632.7   330.    632.7
         330.    635.5
ENDTABLE
SECTION  HERRICK
         0.0     635.3   148.    634.7   262.    634.3
```

80/80 LIST OF INPUT DATA

```
                313.      635.3     313.      632.7     313.      627.5
                319.      627.6     330.      627.5     330.      632.7
                330.      635.5     397.      634.6     504.      634.4
                619.      635.      672.      635.1
ENDTABLE
SEGMENT         SV032     1         D         654.0
NVALUE          .07
SEGMENT         SV032     2         C         684.0
NVALUE          .065
SEGMENT         SV032     3         D         1250.0
NVALUE          .07
SECTION         SV032
                    0.0     637.7     100.0     636.4     130.0     636.4SV032  116
                  130.0     650.1     152.0     650.1     152.0     636.3SV032  216
                  198.0     634.7     222.0     634.5     270.0     635.7SV032  316
                  270.0     650.1     304.0     650.1     304.0     635.6SV032  416
                  347.0     633.0     410.0     634.1     410.0     649.7SV032  516
                  430.0     649.7     430.0     634.4     478.0     633.3SV032  616
                  500.0     633.4     550.0     634.4     600.0     634.3SV032  716
                  617.0     633.6     649.0     633.1     654.0     633.1SV032  816
                  663.0     628.6     665.0     627.2     667.0     627.2SV032  916
                  672.0     627.2     674.0     627.2     677.0     627.9SV032 1016
                  678.0     628.2     684.0     633.2     736.0     635.1SV032 1116
                  736.0     650.0     790.0     650.0     790.0     635.4SV032 1216
                  838.0     634.1     860.0     634.2     910.0     635.4SV032 1316
                  910.0     650.0     945.0     649.8     945.0     635.5SV032 1416
                 1000.0     635.6    1100.0     637.5    1200.0     637.6SV032 1516
                 1250.0     637.8                                    SV032      1616
ENDTABLE
BPR             RICHARD   A         1.        7.
PIER            627.6     1.0
GIRDER          632.5     632.2     45.       .6        2.7
                163.      634.5     163.      632.2     182.      632.2
                182.      634.6
ENDTABLE
SECTION         RICHARD
                -480.     638.      -150.     636.      0.0.      635.
                141.      634.1     163.      634.5     163.      632.2
                163.      627.6     172.      627.9     182.      628.
                182.      632.2     182.      634.6     234.      634.5
                345.      634.5     825.      636.      845.      638.
ENDTABLE
SECTION         SV034
                -638.     638.      -378.     636.      0.0       634.8
                134.      634.      156.      635.      163.      628.3
```

```
----------80/80 LIST OF INPUT DATA----------
          165.      628.2     180.      628.5     186.      634.1
          238.      634.6     350.      634.6     846.      636.
 ENDTABLE
 SEGMENT  SV034     1.        D         156.
 NVALUE   .12
 SEGMENT  SV034     2.        C         186.
 NVALUE   .065
 SEGMENT  SV034     3.        D         846.
 NVALUE   .12
 CULV1    SCOTT     1.0       41122
 CULV2    4.7       8.        57.0      630.6     629.7     0.018
 SECTION  SCOTT
          0.0       635.4     132.      635.4     251.      635.3
          336.0     636.2     348.0     636.4     365.0     636.2
          499.0     635.0     679.0     635.7
 ENDTABLE
 SEGMENT  SV035     1         D         600.0
 NVALUE   0.084
 SEGMENT  SV035     2         C         627.0
 NVALUE   0.060
 SEGMENT  SV035     3         D         1670.0
 NVALUE   0.084
 SECTION  SV035
                0.0       636.5     50.0      636.0     100.0     637.0SV035  1 6
              400.0       636.0     500.0     637.0     600.0     636.0SV035  2 6
              609.0       633.7     611.0     631.6     613.0     630.8SV035  3 6
              618.0       630.2     621.0     630.8     623.0     631.6SV035  4 6
              624.0       635.4     627.0     636.2     700.0     637.0SV035  5 6
          1000.0    638.0     1400.0    638.0     1530.0    638.5
          1670.0    639.0
 ENDTABLE
 CULV1    037SV     1.0       41122
 CULV2    4.3       8.77      717.0     632.3     631.9     0.020
 SECTION  037SV
          0.0       640.0     295.0     639.0     500.0     638.0
          800.0     638.5     1100.0    639.0     1400.0    639.5
          1455.0    638.1     1540.0    639.0     1700.0    639.5
          1820.0    640.0
 ENDTABLE
 SEGMENT  SV038     1         D         -670.
 NVALUE   .06
 SEGMENT  SV038     2         C         -652.
 NVALUE   .04
 SEGMENT  SV038     3         D         290.0
 NVALUE   .07
```



----------80/80 LIST OF INPUT DATA----------

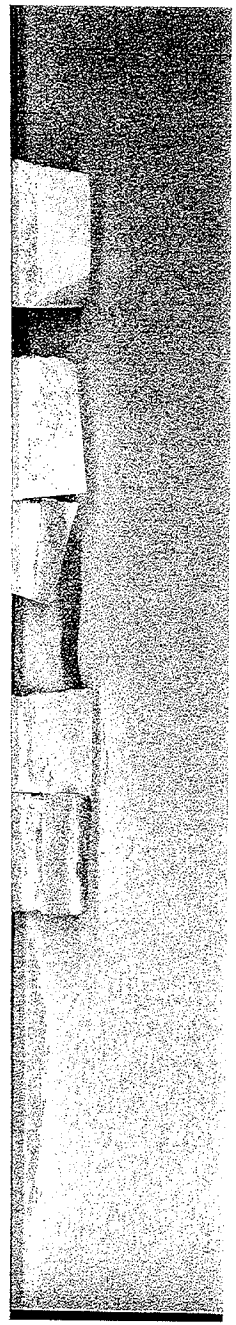
```
SECTION   SV038
          -1200.0   642.5   -1100.0   642.5   -1000.0   641.7SV038  110
           -900.0   639.5    -800.0   638.6    -700.0   638.0SV038  210
           -670.0   638.1    -663.0   633.0    -659.0   632.4SV038  310
           -656.5   632.1    -656.0   633.0    -652.0   638.0SV038  410
           -618.0   652.5    -618.0   638.4    -586.0   638.9SV038  510
           -586.0   652.5    -538.0   637.3    -512.0   637.1SV038  610
           -465.0   652.5    -465.0   638.4    -432.0   637.9SV038  710
           -432.0   652.5    -400.0   636.7    -300.0   637.1SV038  810
           -262.0   636.6    -238.0   636.6    -200.0   638.0SV038  910
           -100.0   637.4     -50.0   637.9       0.0   637.7SV038 1010
            150.0   638.4     290.0   639.0
ENDTABLE
SEGMENT   SV042    1         D       325.0
NVALUE    .05
SEGMENT   SV042    2         C       353.0
NVALUE    .045
SEGMENT   SV042    3         D       1820.0
NVALUE    .060
SECTION   SV042
              0.0   655.3     50.0   655.3     50.0   641.3SV042  1 8
            100.0   640.7    200.0   640.3    300.0   640.3SV042  2 8
            311.0   640.1    325.0   640.7    331.0   638.9SV042  3 8
            336.0   635.2    338.0   634.1    342.0   630.9SV042  4 8
            345.0   634.0    347.0   635.2    349.0   637.1SV042  5 8
            353.0   638.4    380.0   639.9    424.0   640.0SV042  6 8
            470.0   640.1    470.0   655.3    495.0   655.3SV042  7 8
            425.0   640.1    500.0   640.1    550.0   638.4SV042  8 8
            650.0   639.2    705.0   640.0    900.0   640.0
           1200.0   640.0   1630.0   640.0   1750.0   641.0
           1820.0   642.0
ENDTABLE
BPR       046SV    A         3       7
PIER      636.6    0.8
GIRDER    641.9    641.1     0       0.6      2.7     0.020
          365.0    643.2     365.0   641.1    382.0   641.1
          382.0    643.8
ENDTABLE
SECTION   046SV
           -250.0   644.0    -175.0   643.8    -75.0   643.7
              0.0   643.5      74.0   643.3     95.0   643.2
             97.0   643.0     100.0   643.0    154.0   642.9
            156.0   643.2     200.0   643.1    211.0   643.0
            213.0   642.9     278.0   642.9    281.0   643.1
            300.0   643.2     365.0   643.2    365.0   634.4
```

80/80 LIST OF INPUT DATA

```
          373.0    636.5    374.0    636.6    382.0    635.4
          382.0    643.8    399.0    643.0    400.0    642.9
          443.0    643.1    500.0    643.2    556.0    643.1
          556.0    642.7    600.0    642.8    617.0    642.7
          617.0    643.1    700.0    643.2    738.0    643.1
          741.0    642.9    750.0    642.7    900.0    644.0
  ENDTABLE
  SEGMENT SV046    1        D        673.0
  NVALUE  .065
  SEGMENT SV046    2        C        700.0
  NVALUE  .060
  SEGMENT SV046    3        D        2250.0
  NVALUE  .065
  SECTION SV046
                0.0     644.4    100.0    644.4    200.0    644.3SV046  111
              300.0     641.8    400.0    641.6    500.0    640.2SV046  211
              520.0     640.2    530.0    641.9    530.0    657.2SV046  311
              560.0     657.2    560.0    644.1    600.0    643.2SV046  411
              673.0     642.4    682.0    636.7    684.0    635.7SV046  511
              688.0     635.4    692.0    636.0    694.0    636.7SV046  611
              696.0     639.1    700.0    640.3    750.0    642.2SV046  711
              800.0     642.2    856.0    641.7    883.0    641.7SV046  811
              900.0     641.9    932.0    642.7    932.0    657.2SV046  911
              975.0     657.2    975.0    642.7   1000.0    642.6SV046 1011
         1050.0    642.3    1185.0    644.0    1550.0    644.0
         2010.0    644.0    2250.0    645.0
  ENDTABLE
  CULV1   048SV    2        41122
  CULV2   4.6      8        40.0      637.4    637.7     0.015
  SECTION 048SV
            0.0     646.0    130.0    645.0    400.0     644.7
          800.0     644.3   1040.0    644.0   1110.0     643.0
         1195.0     644.0   1470.0    645.0   1655.0     644.0
         1750.0     644.0   1840.0    644.0   2065.0     644.0
         2255.0     644.0   2385.0    645.0   2510.0     646.0
  ENDTABLE
  SEGMENT SV050    1        D        718.0
  NVALUE  .060
  SEGMENT SV050    2        C        747.0
  NVALUE  .085
  SEGMENT SV050    3        D        1680.0
  NVALUE  .075
  SECTION SV050
                0.0     644.2     24.0    643.8    100.0     644.0SV050  112
              188.0     643.7    212.0    643.7    300.0     645.2SV050  212
```

```
----------80/80 LIST OF INPUT DATA----------
                300.0    659.1    660.0    657.3    660.0    641.6SV050  312
                668.0    641.3    679.0    640.7    694.0    642.2SV050  412
                701.0    643.6    706.0    643.6    711.0    643.7SV050  512
                718.0    641.6    724.0    640.8    728.0    639.8SV050  612
                731.0    638.4    733.0    637.5    737.0    637.7SV050  712
                742.0    637.8    744.0    638.4    747.0    640.9SV050  812
                750.0    641.5    800.0    642.3    832.0    642.5SV050  912
                832.0    657.3    857.0    657.4    857.0    642.5SV050 1012
                890.0    642.2    910.0    642.2   1000.0    643.0SV050 1112
           1050.0   643.1   1255.0   644.0   1650.0   645.0
           1680.0   645.6
ENDTABLE
SEGMENT   SV053     1          D        530.0
NVALUE    .050
SEGMENT   SV053     2          C        556.0
NVALUE    .060
SEGMENT   SV053     3          D        980.0
NVALUE    .070
SECTION   SV053
                0.0      647.0    100.0    646.3    200.0    648.9SV053  1 9
              300.0      648.2    400.0    647.0    460.0    647.1SV053  2 9
              467.0      642.9    500.0    642.1    530.0    642.6SV053  3 9
              535.0      641.5    536.0    639.3    538.0    638.5SV053  4 9
              540.0      638.6    546.0    638.5    548.0    639.3SV053  5 9
              556.0      643.6    601.0    643.6    620.0    644.5SV053  6 9
              628.0      647.0    638.0    646.9    644.0    645.2SV053  7 9
              650.0      644.5    700.0    644.7    750.0    644.8SV053  8 9
           800.0    643.4    840.0    646.0    900.0    647.0
           980.0    648.0
ENDTABLE
CULV1     056SV    2          41122
CULV2     5.22     10.0       68.0     639.68   639.5    .020
SECTION   056SV
                0.0      647.8    100.0    647.6    200.0    647.5056SV  1 4
              300.0      647.7    340.0    647.9    350.     647.9 056SV 2 4
              351.       647.9    361.0    647.9    400.0    648.1056SV  3 4
              500.0      648.9    600.0    649.6    700.0    650.3056SV  4 4
ENDTABLE
SEGMENT   SV056     1          D        526.0
NVALUE    0.055
SEGMENT   SV056     2          C        559.0
NVALUE    0.045
SEGMENT   SV056     3          D        800.0
NVALUE    0.060
SECTION   SV056
```

```
----------80/80 LIST OF INPUT DATA----------
                0.0     648.7     526.0     647.5     530.0     643.4SV056  1 4
              535.0     642.3     536.0     640.1     538.0     639.3SV056  2 4
              540.0     639.4     546.0     639.3     548.0     640.1SV056  3 4
              556.0     644.4     559.0     647.5     800.0     648.7SV056  4 4
ENDTABLE
CULV1         059SV     2         41122
CULV2         3.9       14.0      1450.     641.4     639.4     0.025
SECTION       059SV
              -290.0    652.3     -270.0    652.0     -250.0    651.0
              -225.0    650.0     -185.0    649.0     -145.0    648.0
              -140.0    647.0     -135.0    646.0     -120.0    646.0
              -115.0    647.0     -110.0    648.0     -105.0    649.0
              -95.0     650.0     -70.0     650.0     -50.0     650.0
              0.0       651.0     300.0     651.1     600.0     651.0
              900.0     651.0     1200.0    650.9     1500.0    651.0
              1800.0    651.0     2100.0    651.0     2400.0    651.0
ENDTABLE
SEGMENT       SV059     1         D         430.0
NVALUE        0.075
SEGMENT       SV059     2         C         440.0
NVALUE        0.050
SEGMENT       SV059     3         D         675.0
NVALUE        0.060
SECTION       SV059
              0.0       652.3     40.0      652.0     50.0      651.0
              75.0      650.0     115.0     649.0     155.0     648.0
              160.0     649.0     165.0     646.0     180.0     646.0
              185.0     647.0     190.0     648.0     205.0     650.0
              300.0     649.8     400.0     649.7     417.0     649.5
              430.0     644.7     431.0     642.6     435.0     641.4
              439.0     642.7     440.0     644.8     451.0     649.5
              456.0     649.6     461.0     651.4     675.0     651.3
ENDTABLE
SECTION       SV060
              0.0       652.      31.       651.      36.       650.
              46.       645.      49.       644.      54.       643.
              59.       644.      64.       645.      69.       650.
              74.       651.      109.      651.      175.      652.
ENDTABLE
SEGMENT       SV060     1.        D         46.
NVALUE        .07
SEGMENT       SV060     2.        C         64.
NVALUE        .04
SEGMENT       SV060     3.        D         175.
NVALUE        .07
```



----------80/80 LIST OF INPUT DATA----------

```
SECTION   SV062
          0.0       650.      59.       649.      204.      648.
          212.      647.      220.      646.      231.      645.
          235.      644.      240.      643.      245.      644.
          255.      645.      262.      646.      277.      647.
          453.      648.      653.      649.      762.      650.
ENDTABLE
SEGMENT   SV062     1.        D         231.
NVALUE    .07
SEGMENT   SV062     2.        C         255.
NVALUE    .04
SEGMENT   SV062     3.        D         762.
NVALUE    .07
CULV1     064SV     2.        41122
CULV2     3.5       14.0      175.      643.5     643.3     .018
SECTION   064SV
          -1000.0   652.0     -500.0    650.0     -250.0    649.0
          0.0       648.5     100.0     648.8     200.0     649.2
          300.0     649.6     400.0     649.8     500.0     650.0
          600.0     650.6
ENDTABLE
SEGMENT   SV064     1         D         549.0
NVALUE    0.08
SEGMENT   SV064     2         C         588.0
NVALUE    0.04
SEGMENT   SV064     3         D         1250.
NVALUE    0.08
SECTION   SV064
          -1000.0   658.0     -800.0    656.0     -250.0    654.0
          0.0       649.9     100.0     649.5     200.0     651.3
          300.0     650.6     400.0     650.9     500.0     650.1
          549.0     649.0     565.0     643.7     570.0     642.4
          575.0     642.3     580.0     642.8     584.0     643.7
          588.0     645.8     600.0     648.5     700.0     651.0
          800.0     649.7     1000.0    652.0     1250.0    654.0
ENDTABLE
SEGMENT   SV066     1         D         680.0
NVALUE    0.08
SEGMENT   SV066     2         C         706.0
NVALUE    0.04
SEGMENT   SV066     3         D         1250.0
NVALUE    0.08
SECTION   SV066
          -1000.0   656.0     -700.0    652.0     -250.0    655.0
          0.0       649.8     100.0     648.8     200.0     646.0
```

```
----------80/80 LIST OF INPUT DATA----------
                300.0     647.4     400.0     646.5     500.0     646.3
                600.0     646.8     680.0     647.0     685.0     643.7
                689.0     642.3     693.0     642.3     697.0     642.7
                701.0     643.6     706.0     646.1     800.0     648.4
                900.0     649.6    1000.0     649.4    1250.0     655.0
  ENDTABLE
  SEGMENT   SV069      1         D        274.0
  NVALUE    0.08
  SEGMENT   SV069      2         C        300.0
  NVALUE    0.04
  SEGMENT   SV069      3         D        1000.
  NVALUE    0.08
  SECTION   SV069
              -1000.0     655.0    -700.0     653.0    -200.0     651.0
                  0.0     650.4     100.0     649.2     200.0     648.7
                274.0     649.4     281.0     643.7     283.0     642.9
                289.0     642.4     295.0     643.2     297.0     643.7
                300.0     647.9     400.0     649.3     500.0     651.2
                700.0     653.0    1000.0     655.0
  ENDTABLE
  CULV1     071SV     2         12311
  CULV2       7.0                90.0     642.9     642.4
  SECTION   071SV
                  0.0     653.9     100.0     654.0     200.0     654.0
                291.0     654.1     295.0     654.3     299.0     654.4
                304.0     654.5     308.0     654.6     400.0     654.7
                500.0     655.2     600.0     655.6
  ENDTABLE
  SEGMENT   SV076      1         D        100.0
  NVALUE    0.08
  SEGMENT   SV076      2         C        159.0
  NVALUE    0.04
  SEGMENT   SV076      3         D        280.0
  NVALUE    0.08
  SECTION   SV076
                  0.0     664.0     100.0     660.7     120.0     646.7
                126.0     646.1     132.0     645.9     138.0     646.0
                145.0     646.2     159.0     651.1     200.0     652.9
                245.0     654.6     280.0     664.6
  ENDTABLE
  COMPUTE   SV000     SV076     SV000
----------END OF 80/80 LIST----------
```

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV000 DA= 10.6

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	607.2	0.0	0.0						
BANK FULL	612.0	328.0	186.9	0.0	0.0	0.0			
ZERO DAMG	612.0	328.0	186.9	0.0	0.0	0.0			
1	619.4	2304.1	475.0	356.37	0.0	0.0	10.00	609.7	0.00001
2	619.4	2304.1	710.0	356.37	0.0	0.0	50.00	610.2	0.00002
3	619.4	2304.1	852.0	356.37	0.0	0.0	100.00	610.4	0.00002
4	619.4	2304.1	1140.0	356.37	0.0	0.0	500.00	610.9	0.00004

SEGMENT TABLE FOR SECTION SV000

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	475.	0.	460.	15.
45.	VELOCITY FPS	0.21	0.0	0.21	0.14
2	DISCHARGE CFS	710.	0.	687.	23.
67.	VELOCITY FPS	0.31	0.0	0.31	0.21
3	DISCHARGE CFS	852.	0.	824.	28.
80.	VELOCITY FPS	0.37	0.0	0.38	0.25
4	DISCHARGE CFS	1140.	0.	1103.	37.
108.	VELOCITY FPS	0.50	0.0	0.50	0.33
1	ELEV 619.4 KD	170874.	1.	165384.	5488.
2	ELEV 619.4 KD	170874.	1.	165384.	5488.
3	ELEV 619.4 KD	170874.	1.	165384.	5488.
4	ELEV 619.4 KD	170874.	1.	165384.	5488.

RATING TABLE FOR SECTION SV002 DA= 10.6

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	608.4	0.0	0.0						
1	619.6	358.6	473.0	0.0	0.0	0.0	10.00	611.4	0.00018
2	619.8	369.1	705.0	0.0	0.0	0.0	50.00	612.2	0.00038
3	619.9	376.9	851.0	0.0	0.0	0.0	100.00	612.6	0.00052
4	620.2	393.2	1135.0	0.0	0.0	0.0	500.00	613.4	0.00083

SEGMENT TABLE FOR SECTION SV002

CSM		TOTAL	SEG NO 1	SEG NO 2	SEG NO 3
			D	C	D
1	DISCHARGE CFS	473.	0.	473.	0.
45.	VELOCITY FPS	1.32	0.0	1.32	0.0
2	DISCHARGE CFS	705.	0.	705.	0.
67.	VELOCITY FPS	1.91	0.0	1.91	0.0
3	DISCHARGE CFS	851.	0.	851.	0.
80.	VELOCITY FPS	2.26	0.0	2.26	0.0
4	DISCHARGE CFS	1135.	0.	1135.	0.
107.	VELOCITY FPS	2.89	0.0	2.89	0.0
1	ELEV 619.6 KD	34889.	1.	34887.	1.
2	ELEV 619.8 KD	36242.	1.	36240.	1.
3	ELEV 619.9 KD	37265.	1.	37263.	1.
4	ELEV 620.2 KD	39465.	1.	39463.	1.

RATING TABLE FOR SECTION SV006 DA= 10.5

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	611.8	0.0	0.0						
1	620.1	343.7	470.0	0.0	0.0	0.0			
BANK FULL	620.1	346.3	485.9	0.0	0.0	0.0	10.00	614.3	0.00027
ZERO DAMG	620.1	346.3	485.9	0.0	0.0	0.0			
2	620.6	380.9	702.0	71.53	0.0	0.0	50.00	615.0	0.00044
3	620.9	402.4	845.0	74.15	0.0	0.0	100.00	615.3	0.00055
4	621.5	450.0	1130.0	82.97	0.0	0.0	500.00	616.0	0.00071

SEGMENT TABLE FOR SECTION SV006

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	470.	0.	470.	0.
45.	VELOCITY FPS	1.37	0.0	1.37	0.0
2	DISCHARGE CFS	702.	0.	702.	0.
67.	VELOCITY FPS	1.85	0.26	1.85	0.0
3	DISCHARGE CFS	845.	0.	845.	0.
81.	VELOCITY FPS	2.11	0.32	2.11	0.0
4	DISCHARGE CFS	1130.	2.	1128.	0.
108.	VELOCITY FPS	2.54	0.41	2.53	0.0
1	ELEV 620.1 KD	28728.	2.	28725.	1.
2	ELEV 620.6 KD	33384.	6.	33377.	1.
3	ELEV 620.9 KD	36151.	12.	36137.	1.
4	ELEV 621.5 KD	42251.	54.	42196.	1.

BRIDGE PARAMETERS AT ROAD SECTION 008SV

COEEK	AKB	DLTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	0.0	267.2971	117.3674	218.4733

DCRIT= 617.08 KBCRIT= CAREA= 67.36 FLOW= 460.00 QWEIR= 0.0
ELEVB= 621.17 EWSBD= 621.17 HDLOSS= 0.0

COEEK	AKB	DLTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	0.0	308.6768	142.3993	268.5693

DCRIT= 617.56 KBCRIT= CAREA= 90.33 FLOW= 700.00 QWEIR= 0.0
ELEVB= 622.01 EWSBD= 622.01 HDLOSS= 0.0

COEEK	AKB	DLTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	0.0	329.3486	156.0914	295.3770

DCRIT= 617.78 KBCRIT= CAREA= 101.48 FLOW= 832.00 QWEIR= 0.0
ELEVB= 622.43 EWSBD= 622.43 HDLOSS= 0.0

COEEK	AKB	DLTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	0.0	368.6228	183.7104	348.7715

DCRIT= 618.24 KBCRIT= CAREA= 123.78 FLOW= 1120.00 QWEIR= 0.0
ELEVB= 623.24 EWSBD= 623.24 HDLOSS= 0.0

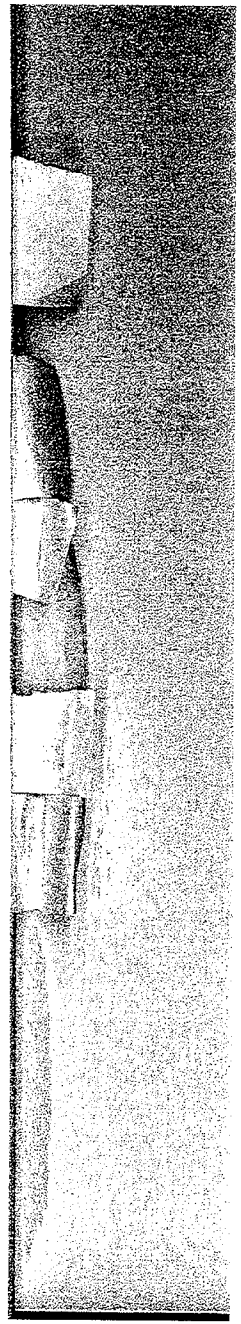
DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 008SV

NO.	HW	CFS	HL	TW	CSM
0	614.90	0.00	0.00	0.00	0.00
1	621.17	460.00	0.0	621.17	10.00
2	622.01	700.00	0.0	622.01	50.00
3	622.43	832.00	0.0	622.43	100.00
4	623.24	1120.00	0.0	623.24	500.00

MIN ROAD ELEVATION 626.30

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 624.12 OPENING NO.= 1



RATING TABLE FOR SECTION SV008 DA= 10.2

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	614.9	0.0	0.0						
1	621.3	120.8	460.0	0.0	0.0	0.0	10.00	618.2	0.00237
2	622.2	148.0	700.0	0.0	0.0	0.0	50.00	619.1	0.00322
3	622.6	162.7	832.0	0.0	0.0	0.0	100.00	619.6	0.00355
4	623.5	192.6	1120.0	0.0	0.0	0.0	500.00	620.5	0.00413

SEGMENT TABLE FOR SECTION SV008

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	460.	0.	460.	0.
45.	VELOCITY FPS	3.81	0.0	3.81	0.0
2	DISCHARGE CFS	700.	0.	700.	0.
68.	VELOCITY FPS	4.73	0.0	4.73	0.0
3	DISCHARGE CFS	832.	0.	832.	0.
81.	VELOCITY FPS	5.12	0.0	5.11	0.0
4	DISCHARGE CFS	1120.	0.	1120.	0.
109.	VELOCITY FPS	5.83	0.0	5.81	0.0
1	ELEV 621.3 KD	9452.	1.	9450.	1.
2	ELEV 622.2 KD	12335.	1.	12333.	1.
3	ELEV 622.6 KD	13957.	1.	13955.	1.
4	ELEV 623.5 KD	17428.	1.	17426.	1.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 014SV

NO.	HW	CFS	HL	TW	CSM
0	618.30	0.00	0.00	0.00	0.00
1	626.05	456.00	0.72	625.33	10.00
2	626.99	690.00	0.26	626.73	50.00
3	627.45	814.00	0.12	627.33	100.00
4	628.60	1100.00	0.10	628.50	500.00

MIN ROAD ELEVATION 626.10

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 622.75 OPENING NO.= 1

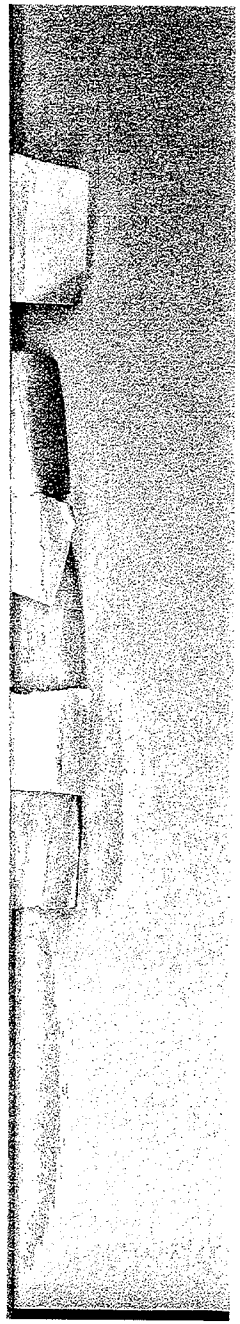
DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV014 DA= 9.9

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT	FRICTION
				DAMAGE	CHANNEL	NON-DAM		ELEV	SLOPE
0	618.4	0.0	0.0						
1	626.1	225.8	456.0	0.0	0.0	0.0	10.00	621.0	0.00040
2	627.0	266.8	690.0	0.0	0.0	0.0	50.00	621.8	0.00059
3	627.5	287.9	814.0	0.0	0.0	0.0	100.00	622.1	0.00068
BANK FULL	628.1	321.2	969.7	0.0	0.0	0.0			
ZERO DAMG	628.1	321.2	969.7	0.0	0.0	0.0			
4	628.6	362.9	1100.0	90.68	0.0	0.0	500.00	622.8	0.00079

SEGMENT TABLE FOR SECTION SV014

CSM		TOTAL	SEG NO 1	2	3
			D	C	D
1	DISCHARGE CFS	456.	0.	456.	0.
46.	VELOCITY FPS	2.02	0.0	2.02	0.0
2	DISCHARGE CFS	690.	0.	690.	0.
70.	VELOCITY FPS	2.59	0.0	2.59	0.0
3	DISCHARGE CFS	814.	0.	814.	0.
82.	VELOCITY FPS	2.83	0.0	2.83	0.0
4	DISCHARGE CFS	1100.	1.	1092.	7.
111.	VELOCITY FPS	3.13	0.37	3.13	0.62
1	ELEV 626.1 KD	22915.	1.	22913.	1.
2	ELEV 627.0 KD	28451.	1.	28449.	1.
3	ELEV 627.5 KD	31264.	1.	31262.	1.
4	ELEV 628.6 KD	38846.	4.	38810.	33.



WSP2 XEQ
REV 03/11/74

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 017SV

NO.	HW	CFS	HL	TW	CSM
0	622.86	0.00	0.00	0.00	0.00
1	629.02	445.00	0.72	628.30	10.00
2	629.60	680.00	0.08	629.52	50.00
3	630.22	801.00	0.08	630.14	100.00
4	631.37	1080.00	0.08	631.29	500.00

MIN ROAD ELEVATION 628.40

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	2	41122.	3.00	10.00	189.00	622.86	622.72	0.015

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV017 DA= 9.7

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	622.7	0.0	0.0						
1	629.1	222.1	445.0	0.0	0.0	0.0	10.00	624.9	0.00042
BANK FULL	629.2	230.5	478.5	0.0	0.0	0.0			
ZERO DAMG	629.2	230.5	478.5	0.0	0.0	0.0			
2	629.7	280.8	680.0	138.67	0.0	0.0	50.00	625.7	0.00066
3	630.3	412.7	801.0	274.44	0.0	0.0	100.00	626.0	0.00059
4	631.5	824.4	1080.0	435.84	0.0	0.0	500.00	626.6	0.00038

**********PROFILE NO 4 EXCEEDS SURVEY DATA**********

SEGMENT TABLE FOR SECTION SV017

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 O
1	DISCHARGE CFS	445.	0.	445.	0.
46.	VELOCITY FPS	2.01	0.0	2.01	0.0
2	DISCHARGE CFS	680.	1.	678.	1.
70.	VELOCITY FPS	2.69	0.20	2.69	0.04
3	DISCHARGE CFS	801.	32.	765.	4.
83.	VELOCITY FPS	2.66	0.53	2.70	0.06
4	DISCHARGE CFS	1080.	245.	823.	12.
112.	VELOCITY FPS	2.19	0.82	2.42	0.07
1	ELEV 629.1 KD	21714.	1.	21712.	1.
2	ELEV 629.7 KD	26505.	16.	26464.	24.
3	ELEV 630.3 KD	32089.	374.	31584.	131.
4	ELEV 631.5 KD	53364.	10284.	42491.	588.

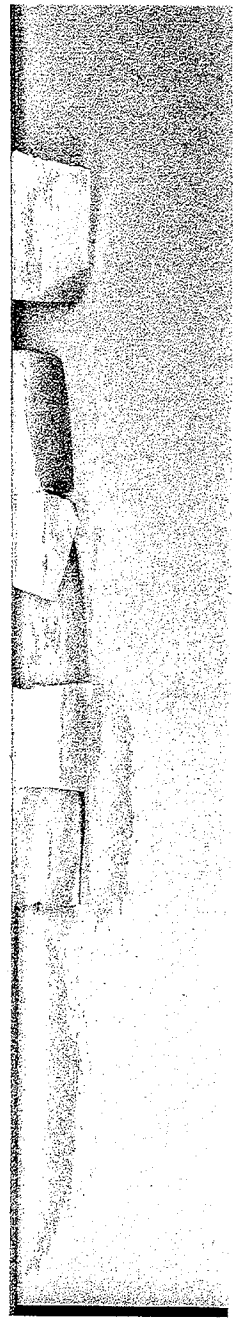
DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV019 DA= 9.4

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	621.2	0.0	0.0						
BANK FULL	629.2	247.9	436.7	0.0	0.0	0.0			
ZERO DAMG	629.2	247.9	436.7	0.0	0.0	0.0			
1	629.3	254.6	440.0	55.35	0.0	0.0	10.00	624.0	0.00016
2	630.0	333.2	670.0	133.34	0.0	0.0	50.00	624.7	0.00023
3	630.6	433.5	790.0	184.00	0.0	0.0	100.00	625.1	0.00021
4	631.6	657.9	1040.0	229.04	0.0	0.0	500.00	625.8	0.00017

SEGMENT TABLE FOR SECTION SV019

CSM		TOTAL	SEG NO 1	2	3
			D	C	D
1	DISCHARGE CFS	440.	0.	439.	1.
47.	VELOCITY FPS	1.75	0.0	1.75	0.39
2	DISCHARGE CFS	670.	1.	649.	20.
71.	VELOCITY FPS	2.24	0.24	2.27	0.46
3	DISCHARGE CFS	790.	13.	721.	55.
84.	VELOCITY FPS	2.22	0.50	2.28	0.61
4	DISCHARGE CFS	1040.	58.	825.	157.
111.	VELOCITY FPS	2.05	0.66	2.24	0.78
1	ELEV 629.3 KO	35109.	1.	35106.	2.
2	ELEV 630.0 KO	43260.	37.	42875.	348.
3	ELEV 630.6 KO	53445.	328.	50145.	2973.
4	ELEV 631.6 KO	79848.	3885.	64725.	11239.



WSP2 XEQ
REV 03/11/74

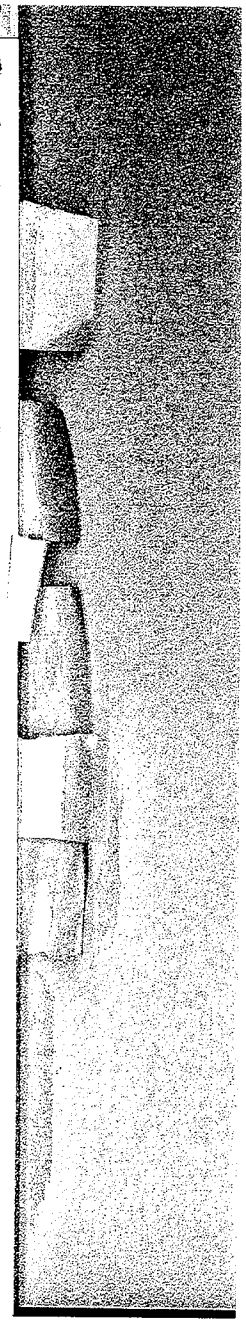
DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 020SV

NO.	HW	CFS	HL	TW	CSM
0	622.90	0.00	0.00	0.00	0.00
1	630.94	440.00	1.68	629.26	10.00
2	633.42	670.00	3.44	629.98	50.00
3	633.69	790.00	3.12	630.58	100.00
4	634.10	1040.00	2.48	631.62	500.00

MIN ROAD ELEVATION 633.40

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	2	12333.	9.80		1300.00	622.90	621.00	0.030



DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV021 DA= 9.2

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	622.1	0.0	0.0						
1	630.9	395.7	440.0	0.0	0.0	0.0	10.00	623.7	0.00026
2	633.4	534.1	670.0	0.0	0.0	0.0	50.00	624.3	0.00026
3	633.7	550.3	790.0	0.0	0.0	0.0	100.00	624.5	0.00033
4	634.1	574.2	1040.0	0.0	0.0	0.0	500.00	625.0	0.00050

SEGMENT TABLE FOR SECTION SV021

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	440.	0.	440.	0.
48.	VELOCITY FPS	1.11	0.0	1.11	0.0
2	DISCHARGE CFS	670.	0.	670.	0.
73.	VELOCITY FPS	1.26	0.0	1.25	0.0
3	DISCHARGE CFS	790.	0.	790.	0.
86.	VELOCITY FPS	1.44	0.0	1.44	0.0
4	DISCHARGE CFS	1040.	0.	1040.	0.
113.	VELOCITY FPS	1.81	0.0	1.81	0.0
1	ELEV 630.9 KD	27331.	1.	27329.	1.
2	ELEV 633.4 KD	41915.	1.	41913.	1.
3	ELEV 633.7 KD	43718.	1.	43716.	1.
4	ELEV 634.1 KD	46447.	1.	46445.	1.

WSP2 XEQ
REV 03/11/74

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 022SV 25TH ST.

NO.	HW	CFS	HL	TW	CSM
0	624.10	0.00	0.00	0.00	0.00
1	631.22	440.00	0.24	630.98	10.00
2	634.09	670.00	0.64	633.45	50.00
3	634.70	790.00	0.96	633.74	100.00
4	635.84	1040.00	1.68	634.17	500.00

MIN ROAD ELEVATION 638.50

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	2	41122.	7.20	12.00	233.00	624.10	622.10	0.025

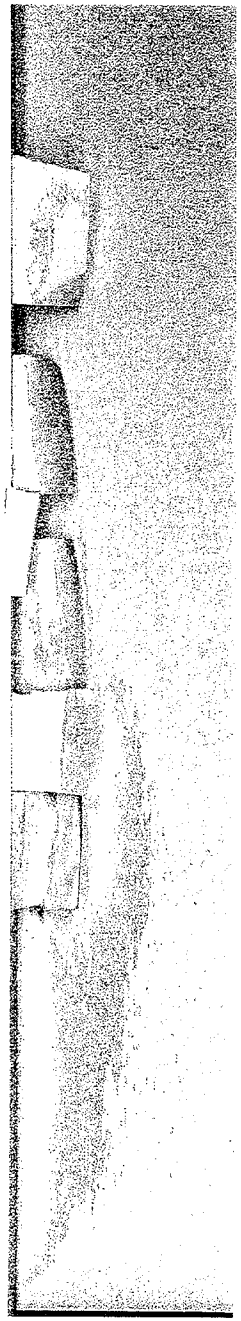
DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV022 DA= 9.6

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	623.8	0.0	0.0						
1	631.2	195.8	440.0	0.0	0.0	0.0	10.00	626.7	0.00059
2	634.1	313.6	670.0	0.0	0.0	0.0	50.00	627.4	0.00038
3	634.7	341.0	790.0	0.0	0.0	0.0	100.00	627.7	0.00042
4	635.9	396.6	1040.0	0.0	0.0	0.0	500.00	628.4	0.00048

SEGMENT TABLE FOR SECTION SV022

CSM		TOTAL	SEG NO 1	2	3
			O	C	O
1	DISCHARGE CFS	440.	0.	440.	0.
46.	VELOCITY FPS	2.25	0.0	2.25	0.0
2	DISCHARGE CFS	670.	0.	670.	0.
70.	VELOCITY FPS	2.14	0.0	2.14	0.0
3	DISCHARGE CFS	790.	0.	790.	0.
82.	VELOCITY FPS	2.32	0.0	2.32	0.0
4	DISCHARGE CFS	1040.	0.	1040.	0.
108.	VELOCITY FPS	2.63	0.29	2.63	0.0
1	ELEV 631.2 KD	18084.	1.	18082.	1.
2	ELEV 634.1 KD	34571.	1.	34569.	1.
3	ELEV 634.7 KD	38769.	1.	38767.	1.
4	ELEV 635.9 KD	47512.	1.	47510.	1.



WSP2 XEQ
REV 03/11/74

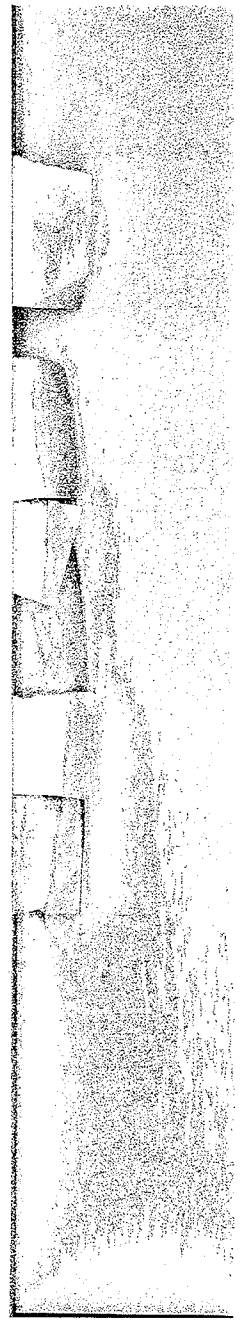
DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 024SV ARMITAGE

NO.	HW	CFS	HL	TW	CSM
0	625.50	0.00	0.00	0.00	0.00
1	632.47	430.00	0.32	632.15	10.00
2	634.73	650.00	0.0	634.73	50.00
3	635.39	780.00	0.0	635.39	100.00
4	636.60	1020.00	0.0	636.60	500.00

MIN ROAD ELEVATION 632.60

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	3	41111.	4.98	7.40	52.00	625.50	625.20	0.012



DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV025 DA= 9.2

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	625.6	0.0	0.0						
BANK FULL	631.4	130.9	351.1	0.0	0.0	0.0			
ZERO DAMG	631.4	130.9	351.1	0.0	0.0	0.0			
1	632.7	402.9	430.0	369.52	0.0	0.0	10.00	629.1	0.00053
2	634.8	1797.7	650.0	1097.32	0.0	0.0	50.00	629.9	0.00008
3	635.4	2546.4	780.0	1176.92	0.0	0.0	100.00	630.2	0.00005
4	636.6	4086.1	1020.0	1430.71	0.0	0.0	500.00	630.8	0.00003

**********PROFILE NO 4 EXCEEDS SURVEY DATA**********

SEGMENT TABLE FOR SECTION SV025

CSM		TOTAL	SEG NO 1 D	2 C	3 D
1	DISCHARGE CFS	430.	90.	333.	7.
47.	VELOCITY FPS	1.77	0.44	1.97	0.24
2	DISCHARGE CFS	650.	280.	237.	132.
71.	VELOCITY FPS	0.65	0.31	0.97	0.20
3	DISCHARGE CFS	780.	332.	220.	228.
85.	VELOCITY FPS	0.50	0.28	0.82	0.21
4	DISCHARGE CFS	1020.	426.	208.	385.
111.	VELOCITY FPS	0.36	0.25	0.67	0.19
1	ELEV 632.7 KD	18004.	3292.	14540.	172.
2	ELEV 634.8 KD	71455.	31168.	27029.	13258.
3	ELEV 635.4 KD	108702.	46803.	31620.	30280.
4	ELEV 636.6 KD	199661.	83518.	40842.	75302.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

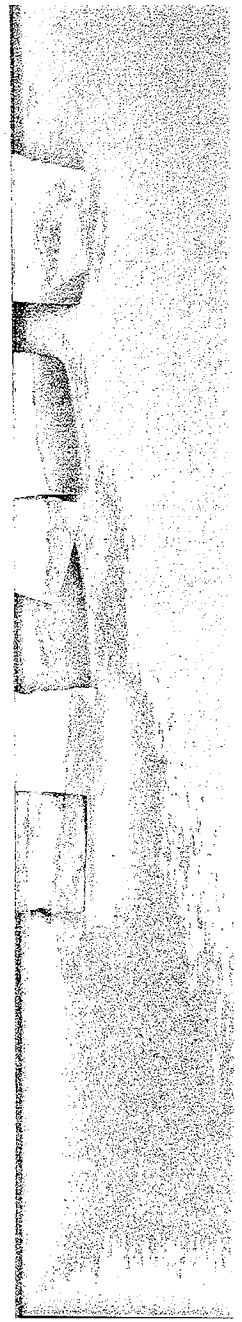
RATING TABLE FOR SECTION SV026 DA= 9.2

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	626.8	0.0	0.0						
BANK FULL	631.9	123.3	338.1	0.0	0.0	0.0			
ZERO DAMG	631.9	123.3	338.1	0.0	0.0	0.0			
1	633.3	364.2	430.0	0.0	0.0	0.0	10.00	630.0	0.00060
2	635.0	1530.6	650.0	0.0	0.0	0.0	50.00	630.7	0.00020
3	635.6	2095.7	775.0	0.0	0.0	0.0	100.00	631.0	0.00015
4	636.7	3229.5	1015.0	0.0	0.0	0.0	500.00	631.6	0.00009

**********PROFILE NO 3 EXCEEDS SURVEY DATA**********

SEGMENT TABLE FOR SECTION SV026

CSM		TOTAL	SEG NO 1	SEG NO 2	SEG NO 3
			D	C	D
1	DISCHARGE CFS	430.	16.	402.	12.
47.	VELOCITY FPS	2.18	0.15	2.23	0.16
2	DISCHARGE CFS	650.	143.	411.	97.
71.	VELOCITY FPS	1.30	0.20	1.60	0.18
3	DISCHARGE CFS	775.	206.	423.	146.
85.	VELOCITY FPS	1.13	0.20	1.49	0.18
4	DISCHARGE CFS	1015.	325.	444.	246.
111.	VELOCITY FPS	0.89	0.21	1.31	0.18
1	ELEV 633.3 KD	17355.	424.	16515.	416.
2	ELEV 635.0 KD	45597.	9705.	29405.	6487.
3	ELEV 635.6 KD	62427.	16201.	34832.	11394.
4	ELEV 636.7 KD	105226.	33635.	46256.	25334.



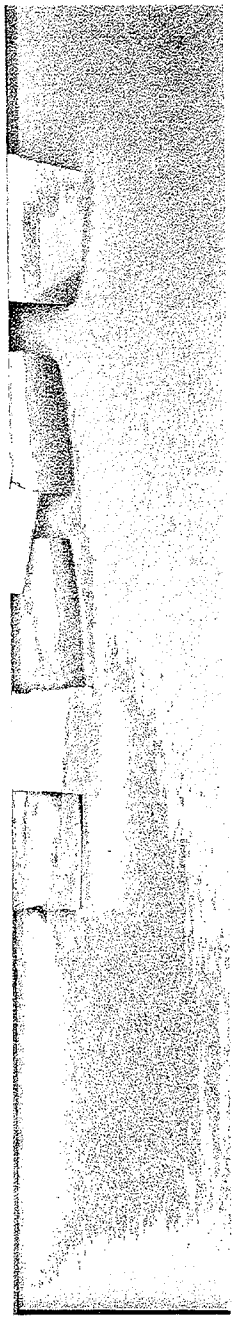
DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION PALMER

NO.	HW	CFS	HL	TW	CSM
0	627.00	0.00	0.00	0.00	0.00
1	633.64	430.00	0.34	633.30	10.00
2	635.01	650.00	0.04	634.97	50.00
3	635.60	775.00	0.04	635.57	100.00
4	636.73	1015.00	0.02	636.71	500.00

MIN ROAD ELEVATION 633.10

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 634.70 OPENING NO.= 1



DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV028 DA= 9.1

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	627.4	0.0	0.0						
ZERO DAMG	632.1	119.1	323.9	0.0	0.0	0.0			
BANK FULL	632.3	160.8	337.7	0.0	0.0	0.0			
1	633.6	811.7	430.0	0.0	0.0	0.0	10.00	630.5	0.00036
2	635.0	1964.4	650.0	0.0	0.0	0.0	50.00	631.2	0.00015
3	635.6	2529.9	775.0	0.0	0.0	0.0	100.00	631.5	0.00011
4	636.7	3625.5	1015.0	0.0	0.0	0.0	500.00	632.4	0.00007

**********PROFILE NO 2 EXCEEDS SURVEY DATA**********

SEGMENT TABLE FOR SECTION SV028

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	430.	81.	315.	33.
47.	VELOCITY FPS	1.48	0.20	1.69	0.16
2	DISCHARGE CFS	650.	197.	330.	124.
71.	VELOCITY FPS	0.97	0.19	1.32	0.18
3	DISCHARGE CFS	775.	256.	346.	173.
85.	VELOCITY FPS	0.85	0.19	1.24	0.19
4	DISCHARGE CFS	1015.	367.	383.	265.
111.	VELOCITY FPS	0.71	0.19	1.16	0.20
1	ELEV 633.6 KD	22443.	3971.	16876.	1597.
2	ELEV 635.0 KD	53476.	15980.	27662.	9834.
3	ELEV 635.6 KD	73171.	23980.	33051.	16141.
4	ELEV 636.7 KD	119827.	43685.	44277.	31866.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV029 DA= 9.1

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	627.3	0.0	0.0						
ZERO DAMG	632.7	121.6	342.5	0.0	0.0	0.0			
1	634.0	422.8	425.0	315.53	0.0	0.0	10.00	630.6	0.00034
BANK FULL	634.3	519.3	479.6	353.71	0.0	0.0			
2	635.2	886.2	645.0	469.23	0.0	0.0	50.00	631.4	0.00019
3	635.8	1197.7	770.0	585.74	0.0	0.0	100.00	631.8	0.00015
4	636.8	1927.7	1010.0	786.78	0.0	0.0	500.00	633.1	0.00009

SEGMENT TABLE FOR SECTION SV029

CSM		TOTAL	SEG NO 1	SEG NO 2	SEG NO 3
			D	C	D
1	DISCHARGE CFS	425.	0.	314.	111.
47.	VELOCITY FPS	1.81	0.0	2.03	0.41
2	DISCHARGE CFS	645.	0.	359.	286.
71.	VELOCITY FPS	1.33	0.0	1.72	0.42
3	DISCHARGE CFS	770.	3.	378.	389.
85.	VELOCITY FPS	1.20	0.16	1.61	0.41
4	DISCHARGE CFS	1010.	23.	406.	581.
111.	VELOCITY FPS	0.96	0.21	1.41	0.38
1	ELEV 634.0 KD	22760.	1.	17349.	5409.
2	ELEV 635.2 KD	47049.	1.	26413.	20636.
3	ELEV 635.8 KD	63310.	21.	31870.	31419.
4	ELEV 636.8 KD	107630.	1722.	44224.	61684.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV030 DA= 8.9

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	627.2	0.0	0.0						
ZERO DAMG	632.9	159.5	346.0	0.0	0.0	0.0			
1	634.2	568.0	425.0	0.0	0.0	0.0	10.00	629.9	0.00032
BANK FULL	635.0	1123.4	581.6	0.0	0.0	0.0			
2	635.3	1382.8	645.0	0.0	0.0	0.0	50.00	630.6	0.00020
3	635.9	1857.6	765.0	0.0	0.0	0.0	100.00	631.0	0.00015
4	636.9	2897.8	1005.0	0.0	0.0	0.0	500.00	631.5	0.00010

**********PROFILE NO 4 EXCEEDS SURVEY DATA**********

SEGMENT TABLE FOR SECTION SV030

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	425.	0.	362.	63.
48.	VELOCITY FPS	1.63	0.0	1.74	0.17
2	DISCHARGE CFS	645.	1.	391.	253.
72.	VELOCITY FPS	1.20	0.10	1.50	0.23
3	DISCHARGE CFS	765.	4.	398.	363.
86.	VELOCITY FPS	1.05	0.09	1.39	0.24
4	DISCHARGE CFS	1005.	27.	417.	560.
113.	VELOCITY FPS	0.83	0.14	1.24	0.24
1	ELEV 634.2 KD	22699.	1.	20278.	2421.
2	ELEV 635.3 KD	45519.	2.	28090.	17427.
3	ELEV 635.9 KD	61066.	65.	32879.	28122.
4	ELEV 636.9 KD	101616.	2097.	43066.	56452.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION FULLER

NO.	HW	CFS	HL	TW	CSM
0	627.80	0.00	0.00	0.00	0.00
1	634.28	425.00	0.08	634.20	10.00
2	635.64	645.00	0.32	635.32	50.00
3	636.33	765.00	0.48	635.86	100.00
4	637.20	1005.00	0.32	636.88	500.00

MIN ROAD ELEVATION 636.80

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	2	41111.	6.60	12.00	107.00	627.80	627.50	0.012

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV30A DA= 8.9

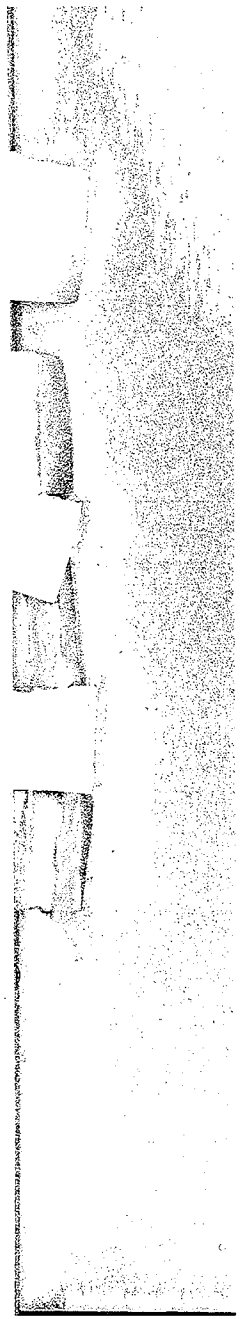
NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	627.4	0.0	0.0						
BANK FULL	631.5	77.4	251.5	0.0	0.0	0.0			
ZERO DAMG	631.5	77.4	251.5	0.0	0.0	0.0			
1	634.3	983.0	425.0	0.0	0.0	0.0	10.00	630.3	0.00030
2	635.7	2109.7	645.0	0.0	0.0	0.0	50.00	631.2	0.00013
3	636.3	2803.6	765.0	0.0	0.0	0.0	100.00	632.2	0.00009
4	637.2	3807.8	1005.0	0.0	0.0	0.0	500.00	632.5	0.00007

**********PROFILE NO 4 EXCEEDS SURVEY DATA**********

SEGMENT TABLE FOR SECTION SV30A

CSM		TOTAL	SEG NO 1	2	3
			D	C	D
1	DISCHARGE CFS	425.	99.	222.	104.
48.	VELOCITY FPS	1.15	0.27	1.51	0.22
2	DISCHARGE CFS	645.	180.	208.	257.
72.	VELOCITY FPS	0.70	0.23	1.15	0.22
3	DISCHARGE CFS	765.	221.	208.	336.
86.	VELOCITY FPS	0.58	0.21	1.05	0.22
4	DISCHARGE CFS	1005.	329.	216.	460.
113.	VELOCITY FPS	0.50	0.23	0.99	0.22

1	ELEV	634.3	KD	24071.	5603.	13241.	5227.
2	ELEV	635.7	KD	56287.	15672.	18581.	22035.
3	ELEV	636.3	KD	79265.	22933.	21622.	34710.
4	ELEV	637.2	KD	118048.	38346.	25695.	54007.



DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV031 DA= 8.8

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	628.3	0.0	0.0						
BANK FULL	633.5	133.3	335.7	0.0	0.0	0.0			
ZERO DAMG	633.5	133.3	335.7	0.0	0.0	0.0			
1	634.8	331.1	420.0	0.0	0.0	0.0	10.00	631.1	0.00118
2	635.9	889.3	640.0	0.0	0.0	0.0	50.00	631.8	0.00066
3	636.5	1191.2	760.0	0.0	0.0	0.0	100.00	632.1	0.00047
4	637.4	1596.0	1000.0	0.0	0.0	0.0	500.00	632.7	0.00036

**********PROFILE NO 2 EXCEEDS SURVEY DATA**********

SEGMENT TABLE FOR SECTION SV031

CSM		TOTAL	SEG NO 1	2	3
			D	C	D
1	DISCHARGE CFS	420.	24.	381.	15.
68.	VELOCITY FPS	2.01	0.28	2.07	0.25
2	DISCHARGE CFS	640.	108.	439.	93.
73.	VELOCITY FPS	1.49	0.31	1.92	0.30
3	DISCHARGE CFS	760.	148.	483.	129.
86.	VELOCITY FPS	1.25	0.30	1.91	0.29
4	DISCHARGE CFS	1000.	216.	593.	191.
113.	VELOCITY FPS	1.07	0.32	2.08	0.30
1	ELEV 634.8 KD	11998.	528.	11245.	225.
2	ELEV 635.9 KD	31720.	6950.	16272.	8497.
3	ELEV 636.5 KD	92183.	24009.	19438.	48736.
4	ELEV 637.4 KD	552798.	110390.	24192.	418216.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION HERRIC

NO.	HW	CFS	HL	TW	CSM
0	627.50	0.00	0.00	0.00	0.00
1	634.97	420.00	0.12	634.85	10.00
2	635.99	640.00	0.04	635.95	50.00
3	636.59	760.00	0.04	636.55	100.00
4	637.40	1000.00	0.04	637.36	500.00

MIN ROAD ELEVATION 634.30

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 632.70 OPENING NO.= 1

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DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV032 DA= 8.7

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	627.2	0.0	0.0						
ZERO DAMG	633.0	125.6	309.2	0.0	0.0	0.0			
BANK FULL	633.1	132.9	314.6	412.84	0.0	0.0	10.00	630.3	0.00030
1	635.1	718.3	420.0	551.22	0.0	0.0	50.00	631.1	0.00016
2	636.0	1347.1	640.0	709.75	0.0	0.0	100.00	631.5	0.00012
3	636.6	1796.8	760.0	796.74	0.0	0.0	500.00	632.2	0.00009
4	637.4	2491.1	1000.0	927.39	0.0	0.0			

SEGMENT TABLE FOR SECTION SV032

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	420.	174.	214.	32.
48.	VELOCITY FPS	0.92	0.40	1.20	0.30
2	DISCHARGE CFS	640.	344.	202.	94.
73.	VELOCITY FPS	0.65	0.41	0.97	0.31
3	DISCHARGE CFS	760.	426.	192.	142.
87.	VELOCITY FPS	0.55	0.38	0.85	0.31
4	DISCHARGE CFS	1000.	581.	199.	220.
115.	VELOCITY FPS	0.49	0.38	0.80	0.31
1	ELEV 635.1 KD	23625.	9459.	12544.	1622.
2	ELEV 636.0 KD	49390.	26346.	16119.	6925.
3	ELEV 636.6 KD	70415.	39482.	18426.	12507.
4	ELEV 637.4 KD	107655.	62317.	21810.	23527.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION RICHAR

NO.	HW	CFS	HL	TW	CSM
0	627.60	0.00	0.00	0.00	0.00
1	635.39	420.00	0.04	635.35	10.00
2	636.26	640.00	0.04	636.22	50.00
3	636.76	760.00	0.02	636.75	100.00
4	637.54	1000.00	0.02	637.52	500.00

MIN ROAD ELEVATION 634.10

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 632.20 OPENING NO.= 1

RATING TABLE FOR SECTION SV034 DA= 8.6

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	628.2	0.0	0.0						
ZERO DAMG	634.0	141.3	337.8	0.0	0.0	0.0			
BANK FULL	634.1	150.1	343.7	0.0	0.0	0.0			
1	635.4	650.7	420.0	0.0	0.0	0.0	10.00	630.9	0.00073
2	636.3	1594.5	640.0	0.0	0.0	0.0	50.00	631.6	0.00037
3	636.8	2254.1	760.0	0.0	0.0	0.0	100.00	632.0	0.00024
4	637.5	3265.2	1000.0	0.0	0.0	0.0	500.00	632.7	0.00013

**********PROFILE NO 2 EXCEEDS SURVEY DATA**********

SEGMENT TABLE FOR SECTION SV034

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	420.	53.	304.	63.
49.	VELOCITY FPS	1.53	0.25	1.78	0.24
2	DISCHARGE CFS	640.	162.	271.	207.
75.	VELOCITY FPS	0.95	0.26	1.37	0.27
3	DISCHARGE CFS	760.	230.	235.	295.
89.	VELOCITY FPS	0.71	0.24	1.11	0.27
4	DISCHARGE CFS	1000.	334.	236.	430.
117.	VELOCITY FPS	0.68	0.23	1.01	0.27
1	ELEV 635.4 KD	15521.	1935.	11306.	2280.
2	ELEV 636.3 KD	32869.	8158.	14288.	10423.
3	ELEV 636.8 KD	48437.	14148.	16145.	18144.
4	ELEV 637.5 KD	90176.	30996.	19215.	39965.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION SCOTT

NO.	HW	CES	HL	TW	CSM
0	630.60	0.00	0.00	0.00	0.00
1	636.51	410.00	0.0	636.51	10.00
2	637.20	630.00	0.0	637.20	50.00
3	637.50	750.00	0.0	637.50	100.00
4	638.05	990.00	0.0	638.05	500.00

MIN ROAD ELEVATION 635.00

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	41122.	4.70	8.00	57.00	630.60	629.70	0.018

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV035 DA= 8.4

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	630.2	0.0	0.0						
BANK FULL	636.0	114.6	368.6	0.0	0.0	0.0			
ZERO DAMG	636.0	114.6	368.6	0.0	0.0	0.0			
1	636.7	258.4	410.0	467.78	0.0	0.0	10.00	634.0	0.00370
2	637.4	731.7	630.0	803.23	0.0	0.0	50.00	635.1	0.00142
3	637.6	950.6	750.0	968.78	0.0	0.0	100.00	635.6	0.00122
4	638.1	1459.5	990.0	1356.37	0.0	0.0	500.00	636.6	0.00076

**********PROFILE NO 1 EXCEEDS SURVEY DATA**********

SEGMENT TABLE FOR SECTION SV035

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	410.	87.	317.	6.
49.	VELOCITY FPS	2.95	0.60	3.14	0.46
2	DISCHARGE CFS	630.	331.	270.	29.
75.	VELOCITY FPS	1.57	0.62	2.24	0.37
3	DISCHARGE CFS	750.	435.	259.	56.
89.	VELOCITY FPS	1.43	0.65	2.05	0.35
4	DISCHARGE CFS	990.	634.	249.	107.
117.	VELOCITY FPS	1.09	0.66	1.78	0.30
1	ELEV 636.7 KD	6573.	1100.	5418.	54.
2	ELEV 637.4 KD	16418.	8437.	7247.	734.
3	ELEV 637.6 KD	21085.	11970.	7855.	1260.
4	ELEV 638.1 KD	35481.	22617.	9282.	3582.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 037SV

NO.	HW	CFS	HL	TW	CSM
0	632.30	0.00	0.00	0.00	0.00
1	638.63	400.00	0.16	638.47	10.00
2	638.80	605.00	0.08	638.72	50.00
3	639.06	720.00	0.08	638.99	100.00
4	639.28	955.00	0.08	639.20	500.00

MIN ROAD ELEVATION 638.00

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	41122.	4.30	8.77	717.00	632.30	631.90	0.020

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV038 DA= 7.8

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	632.1	0.0	0.0						
ZERO DAMG	636.6	51.1	271.8	0.0	0.0	0.0			
BANK FULL	638.0	415.2	356.4	758.08	0.0	0.0			
1	638.7	911.1	400.0	850.81	0.0	0.0	10.00	637.0	0.00027
2	638.9	1111.5	605.0	916.59	0.0	0.0	50.00	637.2	0.00038
3	639.2	1334.0	720.0	989.64	0.0	0.0	100.00	637.3	0.00032
4	639.4	1561.4	955.0	1035.48	0.0	0.0	500.00	637.5	0.00036

**********PROFILE NO 3 EXCEEDS SURVEY DATA**********

SEGMENT TABLE FOR SECTION SV038

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	400.	20.	102.	278.
51.	VELOCITY FPS	0.81	0.28	1.30	0.37
2	DISCHARGE CFS	605.	39.	131.	435.
78.	VELOCITY FPS	0.94	0.37	1.59	0.47
3	DISCHARGE CFS	720.	53.	136.	530.
92.	VELOCITY FPS	0.85	0.37	1.58	0.48
4	DISCHARGE CFS	955.	85.	157.	713.
123.	VELOCITY FPS	0.89	0.45	1.73	0.56

1	ELEV 638.7	KD	23839.	747.	6660.	16432.
2	ELEV 638.9	KD	30262.	1359.	7212.	21691.
3	ELEV 639.2	KD	39674.	2585.	7856.	29233.
4	ELEV 639.4	KD	50187.	4192.	8493.	37502.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV042 DA= 7.4

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	630.9	0.0	0.0						
BANK FULL	638.4	78.8	316.8	0.0	0.0	0.0			
ZERO DAMG	638.4	78.8	316.8	0.0	0.0	0.0			
1	640.0	439.8	385.0	404.94	0.0	0.0	10.00	636.7	0.00067
2	640.3	882.1	595.0	863.18	0.0	0.0	50.00	637.8	0.00060
3	640.4	974.8	705.0	959.22	0.0	0.0	100.00	639.0	0.00068
4	640.6	1178.9	935.0	1170.58	0.0	0.0	500.00	639.2	0.00077

SEGMENT TABLE FOR SECTION SV042

CSM		TOTAL	SEG NO 1	2	3
			D	C	D
1	DISCHARGE CFS	385.	6.	184.	195.
52.	VELOCITY FPS	1.55	0.48	1.70	0.61
2	DISCHARGE CFS	595.	21.	178.	396.
80.	VELOCITY FPS	1.34	0.41	1.52	0.55
3	DISCHARGE CFS	705.	27.	197.	481.
95.	VELOCITY FPS	1.41	0.45	1.66	0.60
4	DISCHARGE CFS	935.	39.	231.	665.
126.	VELOCITY FPS	1.43	0.50	1.88	0.68
1	ELEV 640.0 KD	14156.	3.	8189.	5964.
2	ELEV 640.3 KD	21611.	40.	9133.	12439.
3	ELEV 640.4 KD	23870.	68.	9339.	14463.
4	ELEV 640.6 KD	30099.	214.	9805.	20079.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 046SV

NO.	HW	CFS	HL	TW	CSM
0	634.40	0.00	0.00	0.00	0.00
1	643.21	370.00	0.14	643.07	10.00
2	643.55	570.00	0.06	643.50	50.00
3	643.64	670.00	0.06	643.58	100.00
4	643.95	890.00	0.06	643.89	500.00

MIN ROAD ELEVATION 642.70

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 641.10 OPENING NO.= 1

RATING TABLE FOR SECTION SV046 DA= 6.8

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	635.4	0.0	0.0						
ZERO DAMG	640.2	68.7	227.1	0.0	0.0	0.0			
BANK FULL	640.3	76.9	231.9	472.96	0.0	0.0			
1	643.2	1095.6	370.0	754.73	0.0	0.0	10.00	638.8	0.00010
2	643.6	1427.2	570.0	985.12	0.0	0.0	50.00	639.8	0.00014
3	643.7	1532.6	670.0	1082.81	0.0	0.0	100.00	640.2	0.00018
4	644.0	1912.5	890.0	1435.13	0.0	0.0	500.00	641.1	0.00021

SEGMENT TABLE FOR SECTION SV046

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	370.	168.	101.	102.
54.	VELOCITY FPS	0.45	0.31	0.69	0.25
2	DISCHARGE CFS	570.	261.	134.	175.
84.	VELOCITY FPS	0.53	0.39	0.86	0.29
3	DISCHARGE CFS	670.	308.	151.	211.
99.	VELOCITY FPS	0.59	0.43	0.96	0.32
4	DISCHARGE CFS	890.	413.	181.	297.
131.	VELOCITY FPS	0.65	0.49	1.09	0.33
1	ELEV 643.2 KD	36177.	16570.	10327.	9280.
2	ELEV 643.6 KD	47699.	21848.	11447.	14403.
3	ELEV 643.7 KD	50321.	23129.	11730.	15462.
4	ELEV 644.0 KD	60898.	28263.	12784.	19850.

*****SECT.SV050 KD VALUES REVERSED ON SEGMENT 1 AT ELEVATION 658.50 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****

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DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 0685V

NO.	HW	CFS	HL	TW	CSM
0	637.70	0.00	0.00	0.00	0.00
1	644.23	360.00	0.0	644.23	10.00
2	644.76	560.00	0.0	644.76	50.00
3	644.91	660.00	0.0	644.91	100.00
4	645.21	880.00	0.0	645.21	500.00

MIN ROAD ELEVATION 643.00

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	2	41122.	4.60	8.00	40.00	637.40	637.70	0.015

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV050 DA= 6.6

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	637.6	0.0	0.0						
ZERO DAMG	640.7	48.5	168.7	0.0	0.0	0.0			
BANK FULL	640.9	53.9	179.2	456.76	0.0	0.0			
1	644.3	1131.7	360.0	917.65	0.0	0.0	10.00	640.6	0.00016
2	644.8	1660.6	560.0	1149.16	0.0	0.0	50.00	641.7	0.00015
3	645.0	1855.7	660.0	1183.28	0.0	0.0	100.00	641.9	0.00015
4	645.3	2228.7	880.0	1248.48	0.0	0.0	500.00	642.3	0.00016

**********PROFILE NO 1 EXCEEDS SURVEY DATA**********

SEGMENT TABLE FOR SECTION SV050

CSM			TOTAL	SEG NO 1 D	2 C	3 D
1	DISCHARGE CFS		360.	73.	90.	197.
54.	VELOCITY FPS		0.41	0.29	0.60	0.27
2	DISCHARGE CFS		560.	140.	103.	317.
85.	VELOCITY FPS		0.40	0.34	0.62	0.29
3	DISCHARGE CFS		660.	172.	108.	380.
100.	VELOCITY FPS		0.42	0.37	0.64	0.31
4	DISCHARGE CFS		880.	241.	122.	516.
133.	VELOCITY FPS		0.45	0.42	0.69	0.35
1	ELEV	644.3 KD	27736.	4904.	7523.	15309.
2	ELEV	644.8 KD	46068.	11271.	8831.	25966.
3	ELEV	645.0 KD	53181.	13504.	9240.	30437.
4	ELEV	645.3 KD	69798.	18882.	10049.	40867.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV053 DA= 6.4

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	638.5	0.0	0.0						
ZERO DAMG	642.1	51.0	197.6	0.0	0.0	0.0			
BANK FULL	642.6	77.3	225.1	212.92	0.0	0.0			
1	645.0	458.6	355.0	335.82	0.0	0.0	10.00	641.6	0.00033
2	645.5	644.5	550.0	349.67	0.0	0.0	50.00	642.8	0.00037
3	645.7	712.4	655.0	354.99	0.0	0.0	100.00	642.9	0.00040
4	646.2	883.3	875.0	398.93	0.0	0.0	500.00	643.2	0.00047

SEGMENT TABLE FOR SECTION SV053

CSM		TOTAL	SEG NO 1	2	3
			D	C	D
1	DISCHARGE CFS	355.	158.	143.	54.
55.	VELOCITY FPS	1.00	0.96	1.17	0.31
2	DISCHARGE CFS	550.	228.	179.	143.
86.	VELOCITY FPS	1.10	1.14	1.31	0.46
3	DISCHARGE CFS	655.	267.	203.	186.
102.	VELOCITY FPS	1.16	1.25	1.43	0.52
4	DISCHARGE CFS	875.	307.	250.	317.
136.	VELOCITY FPS	1.23	1.25	1.63	0.66
1	ELEV 645.0 KD	19456.	8729.	7982.	2744.
2	ELEV 645.5 KD	28371.	12009.	9553.	6809.
3	ELEV 645.7 KD	32840.	13385.	10164.	9292.
4	ELEV 646.2 KD	39937.	14288.	11605.	14044.

WSP2 XEQ
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DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 056SV

NO.	HW	CFS	HL	TW	CSM
0	639.68	0.00	0.00	0.00	0.00
1	645.95	350.00	0.32	645.64	10.00
2	647.01	535.00	0.80	646.21	50.00
3	647.53	640.00	1.12	646.41	100.00
4	647.91	850.00	1.04	646.87	500.00

MIN ROAD ELEVATION 647.50

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	2	41122.	5.22	10.00	68.00	639.68	639.50	0.020

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV056 DA= 6.1

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	639.3	0.0	0.0						
1	646.2	140.5	350.0	0.0	0.0	0.0	10.00	642.3	0.00091
2	647.3	184.0	535.0	0.0	0.0	0.0	50.00	643.2	0.00111
BANK FULL	647.5	221.9	566.4	0.0	0.0	0.0			
ZERO DAMG	647.5	221.9	566.4	0.0	0.0	0.0			
3	647.9	310.8	640.0	0.0	0.0	0.0	100.00	643.6	0.00101
4	648.4	425.4	850.0	0.0	0.0	0.0	500.00	644.2	0.00122

SEGMENT TABLE FOR SECTION SV056

CSM		TOTAL	SEG NO 1 (B)	2 (C)	3 (D)
1	DISCHARGE CFS	350.	0.	350.	0.
57.	VELOCITY FPS	2.50	0.0	2.49	0.0
2	DISCHARGE CFS	535.	3.	531.	1.
87.	VELOCITY FPS	3.02	0.50	3.02	0.47
3	DISCHARGE CFS	640.	38.	587.	16.
105.	VELOCITY FPS	2.95	0.47	3.04	0.43
4	DISCHARGE CFS	850.	77.	740.	32.
139.	VELOCITY FPS	3.30	0.52	3.54	0.48
1	ELEV 646.2 KD	11607.	1.	11605.	1.
2	ELEV 647.3 KD	15964.	1.	15961.	1.
3	ELEV 647.9 KD	18750.	93.	18601.	56.
4	ELEV 648.4 KD	25755.	3263.	21190.	1302.

*****SECT.SV059 KD VALUES REVERSED ON SEGMENT 3 AT ELEVATION 651.40 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 059SV

NO.	HW	CFS	HL	TW	CSM
0	641.40	0.00	0.00	0.00	0.00
1	647.73	310.00	1.36	646.38	10.00
2	649.13	490.00	1.60	647.53	50.00
3	649.65	585.00	1.60	648.05	100.00
4	650.25	790.00	1.68	648.57	500.00

MIN ROAD ELEVATION 646.00

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	2	41122.	3.90	14.00	1450.00	641.40	639.40	0.025

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV059 DA= 5.2

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
Q	641.4	0.0	0.0						
BANK FULL	644.7	23.5	161.4	0.0	0.0	0.0			
ZERO DAMG	646.7	23.5	161.4	0.0	0.0	0.0			
1	647.7	112.8	310.0	51.69	0.0	0.0	10.00	646.0	0.00307
2	649.1	230.0	490.0	119.90	0.0	0.0	50.00	646.7	0.00228
3	649.7	333.2	585.0	200.16	0.0	0.0	100.00	647.0	0.00196
4	650.3	506.5	790.0	355.57	0.0	0.0	500.00	647.4	0.00197

SEGMENT TABLE FOR SECTION SV059

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	310.	66.	227.	17.
60.	VELOCITY FPS	3.71	1.35	4.23	1.68
2	DISCHARGE CFS	490.	163.	286.	41.
94.	VELOCITY FPS	3.38	1.16	4.22	1.87
3	DISCHARGE CFS	585.	237.	297.	51.
113.	VELOCITY FPS	3.10	1.02	4.07	1.77
4	DISCHARGE CFS	790.	378.	343.	69.
152.	VELOCITY FPS	3.03	0.97	4.35	1.79
1	ELEV 647.7 KD	5582.	1165.	4112.	304.
2	ELEV 649.1 KD	10201.	3309.	6036.	856.
3	ELEV 649.7 KD	13118.	5136.	6830.	1153.
4	ELEV 650.3 KD	17715.	8364.	7796.	1555.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV060 DA= 5.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	643.0	0.0	0.0						
BANK FULL	645.0	19.0	105.5	0.0	0.0	0.0			
ZERO DAMG	645.0	19.0	105.5	0.0	0.0	0.0			
1	648.7	105.8	300.0	0.0	0.0	0.0	10.00	646.0	0.00102
2	650.0	147.8	485.0	0.0	0.0	0.0	50.00	646.8	0.00110
3	650.5	166.9	570.0	0.0	0.0	0.0	100.00	647.1	0.00113
4	651.3	216.6	775.0	0.0	0.0	0.0	500.00	647.7	0.00143

SEGMENT TABLE FOR SECTION SV060

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	300.	13.	281.	6.
60.	VELOCITY FPS	3.21	0.95	3.30	0.81
2	DISCHARGE CFS	485.	30.	442.	13.
97.	VELOCITY FPS	3.88	1.18	4.04	0.98
3	DISCHARGE CFS	570.	39.	515.	16.
114.	VELOCITY FPS	4.14	1.23	4.33	1.00
4	DISCHARGE CFS	775.	57.	684.	35.
154.	VELOCITY FPS	4.92	1.25	5.20	0.87
1	ELEV 648.7 KD	9376.	402.	8802.	172.
2	ELEV 650.0 KD	14631.	901.	13352.	378.
3	ELEV 650.5 KD	16922.	1146.	15294.	482.
4	ELEV 651.3 KD	20404.	1495.	18105.	804.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV062 DA= 4.8

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	643.0	0.0	0.0						
BANK FULL	645.0	22.0	98.8	0.0	0.0	0.0			
ZERO DAMG	645.0	22.0	98.8	0.0	0.0	0.0			
1	649.0	692.2	295.0	0.0	0.0	0.0	10.00	645.8	0.00014
2	650.3	1460.6	470.0	0.0	0.0	0.0	50.00	646.3	0.00005
3	650.8	1770.2	560.0	0.0	0.0	0.0	100.00	646.5	0.00004
4	651.6	2233.5	760.0	0.0	0.0	0.0	500.00	647.1	0.00003

**********PROFILE NO 2 EXCEEDS SURVEY DATA**********

SEGMENT TABLE FOR SECTION SV062

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	295.	36.	143.	116.
61.	VELOCITY FPS	0.92	0.24	1.22	0.27
2	DISCHARGE CFS	470.	77.	160.	233.
97.	VELOCITY FPS	0.49	0.21	1.07	0.25
3	DISCHARGE CFS	560.	96.	177.	287.
115.	VELOCITY FPS	0.39	0.21	1.09	0.25
4	DISCHARGE CFS	760.	135.	223.	401.
157.	VELOCITY FPS	0.30	0.23	1.23	0.27
1	ELEV 649.0 KQ	24174.	2668.	12427.	9079.
2	ELEV 650.3 KQ	76895.	15922.	18734.	42239.
3	ELEV 650.8 KQ	124090.	29866.	21647.	72578.
4	ELEV 651.6 KQ	250124.	70929.	26406.	152788.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV076 DA= 2.4

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	645.9	0.0	0.0						
1	651.1	172.3	275.0	0.0	0.0	0.0	10.00	647.6	0.00033
BANK FULL	651.1	174.0	278.4	0.0	0.0	0.0			
ZERO DAMG	651.1	174.0	278.4	0.0	0.0	0.0			
2	652.9	293.1	450.0	4.77	0.0	0.0	50.00	648.2	0.00025
3	653.5	357.3	505.0	5.72	0.0	0.0	100.00	648.3	0.00021
4	654.7	503.1	700.0	7.20	0.0	0.0	500.00	648.8	0.00020

SEGMENT TABLE FOR SECTION SV076

CSM		TOTAL	SEG NO 1	SEG NO 2	SEG NO 3
			D	C	D
1	DISCHARGE CFS	275.	0.	275.	0.
117.	VELOCITY FPS	1.61	0.0	1.60	0.13
2	DISCHARGE CFS	450.	0.	440.	10.
191.	VELOCITY FPS	1.70	0.0	1.72	0.28
3	DISCHARGE CFS	505.	0.	483.	22.
214.	VELOCITY FPS	1.65	0.0	1.68	0.31
4	DISCHARGE CFS	700.	0.	636.	64.
297.	VELOCITY FPS	1.76	0.0	1.84	0.41
1	ELEV 651.1 KD	15100.	1.	15096.	3.
2	ELEV 652.9 KD	28518.	1.	27932.	584.
3	ELEV 653.5 KD	34792.	1.	33413.	1378.
4	ELEV 654.7 KD	48790.	1.	44501.	4288.

----------80/80 LIST OF INPUT DATA----------

```
LINK
   FLOW-FREQ SV077     700.      500.      450.      275.
   FLOW-FREQ SV080     660.      480.      430.      270.
   FLOW-FREQ SV082     640.      470.      420.      265.
   FLOW-FREQ SV085     600.      450.      410.      255.
   FLOW-FREQ SV087     592.      430.      400.      252.
   FLOW-FREQ SV088A    582.      420.      390.      250.
   FLOW-FREQ SV088B    574.      415.      385.      250.
   FLOW-FREQ SV088C    566.      410.      380.      245.
   FLOW-FREQ SV089     558.      405.      370.      240.
   FLOW-FREQ SV090     550.      400.      365.      235.
   FLOW-FREQ SV091     545.      390.      360.      234.
   FLOW-FREQ SV092     540.      380.      355.      232.
   FLOW-FREQ SV094     530.      370.      350.      230.
   FLOW-FREQ SV095     530.      370.      350.      226.
   SEGMENT   SV077     1         D         27.0
   NVALUE    0.08
   SEGMENT   SV077     2         C         75.0
   NVALUE    0.04
   SEGMENT   SV077     3         D         230.0
   NVALUE    0.08
   SECTION   SV077
                0.0     660.0      9.0     655.5     27.0     656.5
               43.0     646.7     47.0     646.0     52.0     646.0
               57.0     646.0     62.0     646.9     75.0     650.4
              100.0     650.7    200.0     651.4    230.0     660.0
   ENDTABLE
   BPR       078SV     B         1.0
   GIRDER              659.7     659.5     30.0      0.8      2.7
                        92.5     661.5     92.5     659.5    107.8     659.5
                       107.8     661.5
   ENDTABLE
   SECTION   078SV
               -1000.0     671.5    -500.0     661.5    -250.0     651.5
                  92.5     651.2      92.5     651.2     107.8     651.1
                 200.0     651.2     500.0     661.5    1000.0     671.5
   ENDTABLE
   SEGMENT   SV080     1         D         150.0
   NVALUE    0.08
   SEGMENT   SV080     2         C         184.0
   NVALUE    0.045
   SEGMENT   SV080     3         D         1000.
   NVALUE    0.08
   SECTION   SV080
               -1000.0     664.0    -600.0     662.0    -200.0     660.0
```

80/80 LIST OF INPUT DATA

```
                0.0     654.3   100.0   653.2   150.0   653.2
              156.0     651.3   162.0   650.2   168.0   649.5
              174.0     650.2   180.0   651.1   184.0   653.5
              200.0     653.8   300.0   660.0   500.0   665.0
             1000.0     667.0
ENDTABLE
CULV1   082SV     1         22551
CULV2      6.0                25.0    651.4   651.4
SECTION 082SV
                0.0     661.3   100.0   661.1   200.0   659.6
              289.0     658.0   291.0   658.0   293.0   658.0
              295.0     657.7   300.0   657.7   400.0   657.8
              500.0     659.7   600.0   660.2
ENDTABLE
CULV1   085SV     1         22551
CULV2      6.0                57.0    653.2   652.9
SECTION 085SV
                0.0     661.8   100.0   659.9   120.0   659.7
              122.0     659.7   124.0   659.7   126.0   659.7
              130.0     659.9   200.0   660.8   300.0   663.7
              400.0     665.1
ENDTABLE
SEGMENT SV085     1         D         184.0
NVALUE    0.08
SEGMENT SV085     2         E         207.0
NVALUE    0.045
SEGMENT SV085     3         D         600.0
NVALUE    0.08
SECTION SV085
                0.0     663.7   100.0   658.9   184.0   657.5
              189.0     653.8   191.0   653.4   193.0   653.3
              196.0     653.7   200.0   655.0   207.0   657.5
              300.0     659.2   400.0   658.5   500.0   660.1
              600.0     663.8
ENDTABLE
CULV1   087SV     1         22551
CULV2      6.0                61.0    653.8   653.6
SECTION 087SV
                0.0     659.4   100.0   659.2   200.0   660.4
              300.0     660.4   500.0   660.6   600.0   659.3
              632.0     659.5   650.0   659.5   652.0   659.5
              654.0     659.5   700.0   659.1   800.0   659.2
              900.0     660.3  1000.0   660.7
ENDTABLE
SEGMENT SV087     1         D         409.0
```

----------80/80 LIST OF INPUT DATA----------

```
NVALUE   0.06
SEGMENT  SV087    2        C        436.0
NVALUE   0.045
SEGMENT  SV087    3        D        1500.
NVALUE   0.06
SECTION  SV087
          -50.4    664.0    -50.3    664.0    -50.     664.0
            0.0    659.8    100.0    659.8    200.0    659.7
          300.0    658.7    400.0    658.5    409.0    658.4
          413.0    657.4    418.0    654.8    420.0    653.6
          422.0    653.4    424.0    653.6    426.0    654.8
          428.0    656.4    436.0    658.3    500.0    658.5
          600.0    660.1    700.0    661.7   1500.0    665.0
ENDTABLE
CULV1    088SVA   2        22551
CULV2      5.0              92.0    655.8    655.6
SECTION  088SVA
            0.0    667.4    100.0    667.6    200.0    667.6
          237.5    667.6    241.0    667.6    249.0    667.6
          251.5    667.6    300.0    667.6    400.0    667.5
ENDTABLE
SEGMENT  SV088A   1        D        365.0
NVALUE   0.08
SEGMENT  SV088A   2        C        400.0
NVALUE   0.045
SEGMENT  SV088A   3        D        500.0
NVALUE   0.08
SECTION  SV088A
          -480.0   668.0    -430.0   664.0    -400.0   660.0
            0.0    660.2    100.0    659.1    200.0    660.0
          300.0    659.9    365.0    659.7    380.0    657.5
          381.0    656.2    383.0    655.7    384.0    655.6
          386.0    655.9    388.0    656.2    389.0    656.9
          400.0    659.1    500.0    667.9
ENDTABLE
CULV1    088SVB   1        41111
CULV2      6.3      15.0     56.0    656.0    656.7
SECTION  088SVB
            0.0    667.7    100.0    667.8    200.0    667.8
          300.0    667.9    400.0    668.1    420.0    668.0
          423.0    668.0    426.0    668.0    429.0    668.0
          432.0    668.0    500.0    668.4    600.0    668.5
ENDTABLE
SEGMENT  SV088B   1        D        412.0
NVALUE   0.08
```

----------80/80 LIST OF INPUT DATA----------

```
SEGMENT   SV088B    2          C        448.0
NVALUE    0.045
SEGMENT   SV088B    3          D        750.
NVALUE    0.08
SECTION   SV088B
              -400.0    668.     -350.0    664.0    -70.0     660.0
                 0.0    661.0     100.0    659.8    200.0     661.7
               300.0    662.1     400.0    660.9    412.0     658.3
               419.0    656.7     425.0    655.5    430.0     655.0
               435.0    655.8     441.0    656.7    448.0     662.5
               500.0    663.4     600.0    664.3    750.      668.
ENDTABLE
CULV1     088SVC   1          41111
CULV2       2.2       10.1      76.0     655.9    655.7
SECTION   088SVC
                 0.0    662.3     100.0    662.1    200.0     662.1
               300.0    661.9     400.0    662.0    500.0     662.1
               600.0    663.1     622.0    663.4    627.0     663.4
               632.0    663.5     700.0    664.3    800.0     666.3
ENDTABLE
SEGMENT   SV088C    1          D        415.0
NVALUE    0.07
SEGMENT   SV088C    2          C        453.0
NVALUE    0.035
SEGMENT   SV088C    3          D        700.0
NVALUE    0.07
SECTION   SV088C
              -420.1    668.     -420.0    668.0    -300.0    664.0
                 0.0    661.6     100.0    661.7    200.0     662.0
               300.0    661.1     400.0    662.0    415.0     661.7
               427.0    657.3     431.0    655.6    435.0     656.0
               439.0    655.9     443.0    657.9    453.0     661.9
               500.0    663.2     600.0    665.9    700.0     668.
ENDTABLE
CULV1     088SVD   2          22551
CULV2       5.0       84.0      656.5    656.2
SECTION   088SVD
                 0.0    663.1     100.0    662.3    200.0     661.4
               300.0    662.0     338.0    662.0    344.0     662.0
               400.0    663.1     458.0    663.6    459.0     666.2
ENDTABLE
SEGMENT   SV089     1          D        284.0
NVALUE    0.08
SEGMENT   SV089     2          C        307.0
NVALUE    0.04
```

----------80/80 LIST OF INPUT DATA----------

```
SEGMENT   SV089     3          D          800.0
NVALUE    0.08
SECTION   SV089
          -50.2     668.0     -50.1      668.0     -50.0     668.0
            0.0     666.2     100.0      664.5     200.0     663.6
          284.0     662.6     292.0      657.5     295.0     656.7
          297.0     656.7     300.0      656.3     302.0     657.4
          307.0     664.2     400.0      664.5     415.0     665.3
          700.0     664.      800.0      670.
ENDTABLE
CULV1     090SVA    1         22551
CULV2               6.0                412.0     657.7     657.3
SECTION   090SVA
            0.0     665.6     100.0      664.8     200.0     664.4
          225.0     663.4     232.0      663.4     234.0     663.4
          236.0     663.4     238.0      663.4     240.0     663.4
          247.0     663.3     250.0      664.0     300.0     664.3
          400.0     664.9     500.0      668.1
ENDTABLE
SEGMENT   SV090     1         D          225.0
NVALUE    0.08
SEGMENT   SV090     2         C          247.0
NVALUE    0.04
SEGMENT   SV090     3         D          500.0
NVALUE    0.08
SECTION   SV090
          -100.1    670.0     -100.0     670.0     -50.0     668.0
            0.0     665.6     100.0      664.8     200.0     664.4
          225.0     663.4     232.0      657.7     234.0     657.3
          236.0     657.4     238.0      657.6     240.0     657.7
          247.0     663.3     250.0      664.0     300.0     664.3
          400.0     664.9     500.0      668.1
ENDTABLE
CULV1     090SVB    1         22551
CULV2               6.0                65.7      657.4     657.1
SECTION   090SVB
            0.0     665.5     100.0      664.5     200.0     664.5
          300.0     664.7     362.0      664.7     364.0     664.7
          366.0     664.8     400.0      664.6     600.0     664.3
          700.0     664.9     800.0      665.2     900.0     665.4
ENDTABLE
SEGMENT   SV091     1         D          107.0
NVALUE    0.08
SEGMENT   SV091     2         C          130.0
NVALUE    0.04
```

----------80/80 LIST OF INPUT DATA----------

```
SEGMENT   SV091      3          D          950.0
NVALUE    0.08
SECTION   SV091
              -350.0     668.0     -200.0     664.5     -150.0     664.0
                 0.0     664.6      100.0     664.4      107.0     663.3
               115.0     658.0      117.0     657.7      120.0     657.8
               122.0     658.2      124.0     658.3      130.0     661.8
               200.0     663.0      300.0     665.4      400.0     666.0
               900.0     668.       950.      670.
ENDTABLE
CULV1     Q91SV      1          22551
CULV2          5.5                34.0      658.2      657.9
SECTION   Q91SV
                 0.0     664.7      100.0     662.9      140.0     662.9
               140.0     662.9      143.0     662.5      146.0     662.5
               200.0     662.5      300.0     663.9      400.0     665.1
               500.0     665.1      600.0     665.2      700.0     665.8
ENDTABLE
SEGMENT   SV092      1          D          374.0
NVALUE    0.08
SEGMENT   SV092      2          C          396.0
NVALUE    0.035
SEGMENT   SV092      3          D          1000.
NVALUE    0.07
SECTION   SV092
                 0.0     669.6      100.0     668.9      200.0     668.7
               300.0     667.5      337.0     666.6      357.0     665.8
               372.0     660.9      374.0     660.1      375.0     658.6
               377.0     658.0      380.0     657.8      383.0     658.0
               385.0     658.6      388.0     660.9      396.0     660.7
               400.0     660.6      500.0     661.8      600.0     662.5
               700.0     662.3      750.0     664.0      900.0     668.0
            1000.0     670.0
ENDTABLE
SEGMENT   SV094      1          D          213.0
NVALUE    0.06
SEGMENT   SV094      2          C          237.0
NVALUE    0.035
SEGMENT   SV094      3          D          1050.
NVALUE    0.06
SECTION   SV094
                 0.0     670.8      100.0     669.9      200.0     668.0
               213.0     665.4      220.0     661.2      224.0     660.2
               228.0     660.0      231.0     660.2      232.0     661.1
               237.0     664.5      300.0     663.7      400.0     663.6
```

```
----------80/80 LIST OF INPUT DATA----------
          500.0    663.9    600.0    664.4    820.0    666.0
          940.0    668.0   1050.0    670.0
ENDTABLE
CULV1     094SV      1          41111
CULV2                3.7      10.5      48.7     660.8     660.5
SECTION   094SV
                     0.0     667.1     100.0     665.3     200.0     665.5
                   299.0     664.4     299.0     664.6     304.0     664.7
                   309.5     664.8     400.0     666.3     500.0     665.7
                   600.0     666.0     700.0     666.4
ENDTABLE
SEGMENT   SV095      1         D         200.0
NVALUE    0.08
SEGMENT   SV095      2         C         300.0
NVALUE    0.04
SEGMENT   SV095      3         D         400.0
NVALUE    0.08
SECTION   SV095
                     0.0     670.2     100.0     666.8     200.0     664.0
                   223.0     661.8     228.0     661.7     232.0     661.9
                   300.0     664.1     400.0     674.0
ENDTABLE
COMPUTE   SV077      SV095     SV076
----------END OF 80/80 LIST----------
```

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV077 DA= 2.6

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	646.0	0.0	0.0						
BANK FULL	650.4	116.3	223.5	0.0	0.0	0.0			
ZERO DAMG	650.4	116.3	223.5	0.0	0.0	0.0			
1	651.4	217.4	275.0	3.00	0.0	0.0	10.00	648.0	0.00036
2	653.1	493.2	450.0	3.58	0.0	0.0	50.00	648.7	0.00020
3	653.7	599.9	500.0	3.64	0.0	0.0	100.00	648.8	0.00015
4	654.9	812.1	700.0	3.77	0.0	0.0	500.00	649.4	0.00013

SEGMENT TABLE FOR SECTION SV077

CSM		TOTAL	SEG NO 1	2	3
			D	C	D
1	DISCHARGE CFS	275.	0.	258.	17.
106.	VELOCITY FPS	1.65	0.0	1.68	0.26
2	DISCHARGE CFS	450.	0.	335.	115.
173.	VELOCITY FPS	1.33	0.0	1.51	0.43
3	DISCHARGE CFS	500.	0.	346.	154.
192.	VELOCITY FPS	1.19	0.0	1.40	0.44
4	DISCHARGE CFS	700.	0.	436.	264.
269.	VELOCITY FPS	1.19	0.0	1.45	0.52
1	ELEV 651.4 KD	14117.	1.	13570.	546.
2	ELEV 653.1 KD	31998.	1.	23919.	8079.
3	ELEV 653.7 KD	40649.	1.	28315.	12334.
4	ELEV 654.9 KD	60495.	1.	37778.	22716.

WSP2 XEQ
REV 03/11/74

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 078SV

NO.	HW	CFS	HL	TW	CSM
0	651.10	0.00	0.00	0.00	0.00
1	653.84	270.00	0.0	653.84	10.00
2	654.83	430.00	0.0	654.83	50.00
3	655.18	480.00	0.0	655.18	100.00
4	656.03	660.00	0.02	656.01	500.00

MIN ROAD ELEVATION 651.10

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 659.50 OPENING NO.= 1

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV080 DA= 2.4

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	649.5	0.0	0.0						
BANK FULL	653.2	85.9	193.9	0.0	0.0	0.0			
ZERO DAMG	653.2	85.9	193.9	0.0	0.0	0.0			
1	654.7	320.0	270.0	5.19	0.0	0.0	10.00	651.9	0.00040
2	655.6	546.6	430.0	6.26	0.0	0.0	50.00	652.4	0.00032
3	655.8	622.5	480.0	6.59	0.0	0.0	100.00	652.6	0.00029
4	656.5	830.8	660.0	7.39	0.0	0.0	500.00	653.1	0.00027

SEGMENT TABLE FOR SECTION SV080

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 O
1	DISCHARGE CFS	270.	65.	198.	7.
114.	VELOCITY FPS	1.37	0.39	1.53	0.32
2	DISCHARGE CFS	430.	154.	254.	22.
182.	VELOCITY FPS	1.28	0.47	1.59	0.39
3	DISCHARGE CFS	480.	184.	269.	27.
203.	VELOCITY FPS	1.23	0.48	1.59	0.39
4	DISCHARGE CFS	660.	287.	325.	48.
280.	VELOCITY FPS	1.25	0.54	1.69	0.45
1	ELEV 654.7 KO	13270.	2879.	10091.	299.
2	ELEV 655.6 KO	24051.	8429.	14453.	1168.
3	ELEV 655.8 KO	28318.	10785.	15942.	1591.
4	ELEV 656.5 KO	39728.	17169.	19717.	2842.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 082SV

NO.	HW	CFS	HL	TW	CSM
0	651.40	0.00	0.00	0.00	0.00
1	657.97	265.00	2.40	655.57	10.00
2	658.35	420.00	2.00	656.35	50.00
3	658.41	470.00	1.84	656.57	100.00
4	658.66	640.00	1.52	657.14	500.00

MIN ROAD ELEVATION 657.70

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	22551.	6.00		25.00	651.40	651.40	0.012

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV082 DA= 2.2

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	651.5	0.0	0.0						
BANK FULL	655.2	85.9	151.5	0.0	0.0	0.0			
ZERO DAMG	655.2	85.9	151.5	0.0	0.0	0.0			
1	658.0	660.0	265.0	0.07	0.0	0.0	10.00	653.9	0.00008
2	658.3	777.3	420.0	0.07	0.0	0.0	50.00	654.4	0.00013
3	658.4	797.0	470.0	0.07	0.0	0.0	100.00	654.6	0.00015
4	658.7	874.6	640.0	0.08	0.0	0.0	500.00	655.0	0.00023

SEGMENT TABLE FOR SECTION SV082

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	265.	104.	145.	16.
120.	VELOCITY FPS	0.64	0.25	0.83	0.21
2	DISCHARGE CFS	420.	178.	213.	29.
191.	VELOCITY FPS	0.86	0.36	1.14	0.30
3	DISCHARGE CFS	470.	201.	235.	33.
214.	VELOCITY FPS	0.94	0.40	1.25	0.33
4	DISCHARGE CFS	640.	283.	309.	48.
291.	VELOCITY FPS	1.15	0.50	1.57	0.42
1	ELEV 658.0 KD	30326.	11896.	16632.	1798.
2	ELEV 658.3 KD	36546.	15353.	18721.	2472.
3	ELEV 658.4 KD	37696.	16006.	19086.	2604.
4	ELEV 658.7 KD	42512.	18779.	20554.	3178.

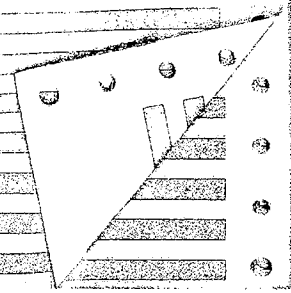
DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 085SV

NO.	HW	CFS	HL	TW	CSM
0	653.20	0.00	0.00	0.00	0.00
1	660.07	255.00	1.76	658.31	10.00
2	660.64	410.00	1.84	658.80	50.00
3	660.64	450.00	1.76	658.88	100.00
4	660.94	600.00	1.68	659.26	500.00

MIN ROAD ELEVATION 659.70

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	22551.	6.00		57.00	653.20	652.90	0.012



DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV085 DA= 2.1

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	653.3	0.0	0.0						
BANK FULL	657.5	58.7	157.0	0.0	0.0	0.0			
ZERO DAMG	657.5	58.7	157.0	0.0	0.0	0.0			
1	660.1	675.2	255.0	3.85	0.0	0.0	10.00	656.2	0.00012
2	660.7	923.7	410.0	4.16	0.0	0.0	50.00	657.0	0.00014
3	660.7	932.9	450.0	4.17	0.0	0.0	100.00	657.2	0.00016
4	661.0	1076.4	600.0	4.31	0.0	0.0	500.00	658.2	0.00020

SEGMENT TABLE FOR SECTION SV085

CSM		TOTAL	SEG NO 1 D	2 C	3 D
1	DISCHARGE CFS	255.	49.	116.	90.
124.	VELOCITY FPS	0.71	0.27	0.98	0.24
2	DISCHARGE CFS	410.	84.	153.	174.
139.	VELOCITY FPS	0.77	0.34	1.16	0.32
3	DISCHARGE CFS	450.	92.	166.	192.
218.	VELOCITY FPS	0.83	0.37	1.26	0.35
4	DISCHARGE CFS	600.	126.	201.	273.
291.	VELOCITY FPS	0.93	0.44	1.44	0.42
1	ELEV 660.1 KD	23423.	4422.	11133.	7868.
2	ELEV 660.7 KD	34940.	7102.	13262.	14576.
3	ELEV 660.7 KD	35355.	7200.	13337.	14818.
4	ELEV 661.0 KD	42500.	8879.	14553.	19068.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 087SV

NO.	HW	CFS	HL	TW	CSM
0	653.80	0.00	0.00	0.00	0.00
1	660.23	252.00	0.0	660.23	10.00
2	660.81	400.00	0.0	660.81	50.00
3	660.84	430.00	0.0	660.84	100.00
4	661.18	592.00	0.0	661.18	500.00

MIN ROAD ELEVATION 659.10

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	22551.	6.00		61.00	653.80	653.60	0.012

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV087 DA= 2.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	653.4	0.0	0.0						
BANK FULL	658.3	73.3	179.8	0.0	0.0	0.0			
ZERO DAMG	658.3	73.3	179.8	0.0	0.0	0.0			
1	660.3	727.5	252.0	3.96	0.0	0.0	10.00	656.9	0.00010
2	660.8	1090.8	400.0	4.54	0.0	0.0	50.00	657.7	0.00009
3	660.9	1114.9	430.0	4.55	0.0	0.0	100.00	657.9	0.00010
4	661.2	1346.3	592.0	4.73	0.0	0.0	500.00	658.4	0.00011

SEGMENT TABLE FOR SECTION SV087

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	252.	100.	90.	63.
125.	VELOCITY FPS	0.56	0.25	0.79	0.28
2	DISCHARGE CFS	400.	192.	106.	102.
199.	VELOCITY FPS	0.52	0.30	0.82	0.31
3	DISCHARGE CFS	430.	208.	112.	110.
214.	VELOCITY FPS	0.54	0.32	0.86	0.32
4	DISCHARGE CFS	592.	305.	134.	154.
295.	VELOCITY FPS	0.58	0.39	0.95	0.37
1	ELEV 660.3 KD	23994.	8593.	9353.	6049.
2	ELEV 660.8 KD	41967.	19650.	11564.	10754.
3	ELEV 660.9 KD	43184.	20392.	11707.	11085.
4	ELEV 661.2 KD	56749.	28871.	13137.	14741.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 088SVA

NO.	HW	CFS	HL	TW	CSM
0	655.80	0.00	0.00	0.00	0.00
1	661.88	250.00	0.88	661.00	10.00
2	663.73	390.00	2.24	661.49	50.00
3	664.09	420.00	2.56	661.54	100.00
4	666.88	582.00	5.04	661.84	500.00

MIN ROAD ELEVATION 667.40

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	2	22551.	5.00		92.00	655.80	655.60	0.012

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV088A DA= 2.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	655.6	0.0	0.0						
BANK FULL	659.1	49.3	139.4	0.0	0.0	0.0			
ZERO DAMG	659.1	49.3	139.4	0.0	0.0	0.0			
1	661.9	1696.1	250.0	0.39	0.0	0.0	10.00	658.8	0.00002
2	663.7	3291.5	390.0	0.40	0.0	0.0	50.00	659.4	0.00001
3	664.1	3619.3	420.0	0.41	0.0	0.0	100.00	659.5	0.00001
4	666.9	6188.0	582.0	0.44	0.0	0.0	500.00	659.8	0.00000

SEGMENT TABLE FOR SECTION SV088A

CSM		TOTAL	SEG NO 1	2	3
			D	C	D
1	DISCHARGE CFS	250.	193.	52.	5.
128.	VELOCITY FPS	0.21	0.13	0.36	0.10
2	DISCHARGE CFS	390.	326.	54.	10.
199.	VELOCITY FPS	0.14	0.11	0.26	0.08
3	DISCHARGE CFS	420.	353.	56.	11.
214.	VELOCITY FPS	0.14	0.11	0.25	0.08
4	DISCHARGE CFS	582.	498.	62.	22.
297.	VELOCITY FPS	0.11	0.09	0.19	0.06
1	ELEV 661.9 KD	55706.	42791.	11913.	1001.
2	ELEV 663.7 KD	157959.	131905.	22121.	3929.
3	ELEV 664.1 KD	182659.	153421.	24430.	4808.
4	ELEV 666.9 KD	422884.	362203.	44918.	15763.

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DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 088SV8

NO.	HW	CFS	HL	TW	CSM
0	656.70	0.00	0.00	0.00	0.00
1	662.13	250.00	0.24	661.89	10.00
2	664.04	385.00	0.32	663.73	50.00
3	664.49	415.00	0.40	664.09	100.00
4	667.68	574.00	0.80	666.88	500.00

MIN ROAD ELEVATION 667.70

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	41111.	6.30	15.00	56.00	656.00	656.70	0.012

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV088B DA= 2.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	655.0	0.0	0.0						
BANK FULL	658.3	62.6	115.5	0.0	0.0	0.0			
ZERO DAMG	658.3	62.6	115.5	0.0	0.0	0.0			
1	662.1	904.8	250.0	0.45	0.0	0.0	10.00	657.4	0.00006
2	664.0	2379.6	385.0	0.63	0.0	0.0	50.00	657.9	0.00001
3	664.5	2810.6	415.0	0.66	0.0	0.0	100.00	658.0	0.00001
4	667.7	6113.4	574.0	0.78	0.0	0.0	500.00	658.5	0.00000

SEGMENT TABLE FOR SECTION SV088B

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	250.	111.	139.	0.
128.	VELOCITY FPS	0.56	0.15	0.73	0.0
2	DISCHARGE CFS	385.	269.	112.	4.
196.	VELOCITY FPS	0.26	0.13	0.43	0.05
3	DISCHARGE CFS	415.	300.	106.	10.
212.	VELOCITY FPS	0.23	0.13	0.39	0.06
4	DISCHARGE CFS	574.	440.	89.	46.
293.	VELOCITY FPS	0.12	0.09	0.23	0.05
1	ELEV 662.1 KD	32676.	14293.	18382.	1.
2	ELEV 664.0 KD	104231.	72732.	30399.	1100.
3	ELEV 664.5 KD	128709.	92795.	33609.	2304.
4	ELEV 667.7 KD	402172.	306896.	60254.	35022.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 088SVC

NO.	HW	CFS	HL	TW	CSM
0	655.90	0.00	0.00	0.00	0.00
1	662.30	245.00	0.16	662.14	10.00
2	664.05	380.00	0.0	664.05	50.00
3	664.50	410.00	0.0	664.50	100.00
4	667.68	566.00	0.0	667.68	500.00

MIN ROAD ELEVATION 661.90

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	41111.	2.20	10.10	76.00	655.90	655.70	0.012

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV088C DA= 2.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	655.6	0.0	0.0						
ZERO DAMG	661.1	110.8	200.5	0.0	0.0	0.0			
BANK FULL	661.7	227.1	222.3	0.58	0.0	0.0			
1	662.3	479.0	245.0	0.64	0.0	0.0	10.00	658.2	0.00014
2	664.0	1684.6	380.0	0.93	0.0	0.0	50.00	658.9	0.00003
3	664.5	2055.2	410.0	0.99	0.0	0.0	100.00	659.0	0.00002
4	667.7	5152.6	566.0	1.26	0.0	0.0	500.00	659.6	0.00000

SEGMENT TABLE FOR SECTION SV088C

CSM		TOTAL	SEG NO. 1	2	3
			D	C	D
1	DISCHARGE CFS	245.	64.	180.	1.
125.	VELOCITY FPS	1.07	0.20	1.16	0.14
2	DISCHARGE CFS	380.	228.	141.	10.
194.	VELOCITY FPS	0.43	0.17	0.64	0.11
3	DISCHARGE CFS	410.	262.	135.	13.
209.	VELOCITY FPS	0.36	0.15	0.57	0.10
4	DISCHARGE CFS	566.	419.	105.	42.
289.	VELOCITY FPS	0.15	0.10	0.29	0.07
1	ELEV 662.3 KD	19687.	3611.	16062.	13.
2	ELEV 664.0 KD	74842.	44097.	28981.	1764.
3	ELEV 664.5 KD	98294.	62414.	32844.	3035.
4	ELEV 667.7 KD	352296.	260907.	65309.	26080.

BRIDGE PARAMETERS AT ROAD SECTION 088SVD

ELEVB=	662.31	EWSBD=	662.31	HDLOSS=	0.0
ELEVB=	664.05	EWSBD=	664.05	HDLOSS=	0.0
ELEVB=	664.50	EWSBD=	664.50	HDLOSS=	0.0
ELEVB=	667.68	EWSBD=	667.68	HDLOSS=	0.0

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION OBSVD

NO.	HW	CFS	HL	TW	CSM
0	656.50	0.00	0.00	0.00	0.00
1	662.31	240.00	0.0	662.31	10.00
2	664.05	370.00	0.0	664.05	50.00
3	664.50	405.00	0.0	664.50	100.00
4	667.68	558.00	0.0	667.68	500.00

MIN ROAD ELEVATION 661.40

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	2	22551.	5.00		84.00	656.50	656.20	0.012

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DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV089 DA= 1.4

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	656.3	0.0	0.0						
BANK FULL	662.6	88.9	232.3	0.0	0.0	0.0			
ZERO DAMG	662.6	88.9	232.3	0.0	0.0	0.0			
1	662.8	98.1	240.0	0.45	0.0	0.0	10.00	659.3	0.00090
2	664.4	306.7	370.0	3.63	0.0	0.0	50.00	660.1	0.00056
3	664.8	499.0	405.0	5.30	0.0	0.0	100.00	660.3	0.00040
4	667.7	2557.9	558.0	9.18	0.0	0.0	500.00	661.0	0.00002

SEGMENT TABLE FOR SECTION SV089

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	240.	2.	238.	0.
171.	VELOCITY FPS	2.56	0.31	2.56	0.0
2	DISCHARGE CFS	370.	58.	303.	9.
264.	VELOCITY FPS	2.20	0.40	2.36	0.27
3	DISCHARGE CFS	405.	88.	278.	38.
289.	VELOCITY FPS	1.80	0.40	2.03	0.27
4	DISCHARGE CFS	558.	189.	131.	237.
399.	VELOCITY FPS	0.36	0.19	0.64	0.18
1	ELEV 662.8 KD	7960.	2.	7956.	1.
2	ELEV 664.4 KD	15408.	2271.	13060.	78.
3	ELEV 664.8 KD	18827.	3830.	14563.	434.
4	ELEV 667.7 KD	118556.	40120.	28399.	50037.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 090SVA

NO.	HW	CFS	HL	TW	CSM
0	657.70	0.00	0.00	0.00	0.00
1	664.15	235.00	0.88	663.27	10.00
2	664.80	365.00	0.08	664.72	50.00
3	665.13	400.00	0.08	665.05	100.00
4	667.71	550.00	0.0	667.71	500.00

MIN ROAD ELEVATION 663.30

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	22551.	6.00		412.00	657.70	657.30	0.012

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV090 DA= 1.3

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	657.3	0.0	0.0						
BANK FULL	663.3	86.1	204.5	0.0	0.0	0.0			
ZERO DAMG	663.3	86.1	204.5	0.0	0.0	0.0			
1	664.2	130.0	235.0	0.13	0.0	0.0	10.00	660.2	0.00055
2	664.9	266.5	365.0	0.30	0.0	0.0	50.00	660.9	0.00066
3	665.2	358.3	400.0	0.40	0.0	0.0	100.00	661.1	0.00056
4	667.7	1519.9	550.0	0.61	0.0	0.0	500.00	661.8	0.00006

SEGMENT TABLE FOR SECTION SV090

CSM	TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1 DISCHARGE CFS	235.	2.	230.	3.
174. VELOCITY FPS	2.18	0.20	2.19	0.18
2 DISCHARGE CFS	365.	23.	313.	29.
270. VELOCITY FPS	2.47	0.33	2.60	0.38
3 DISCHARGE CFS	400.	35.	319.	46.
296. VELOCITY FPS	2.27	0.32	2.51	0.37
4 DISCHARGE CFS	550.	191.	188.	171.
407. VELOCITY FPS	0.66	0.27	1.03	0.27
1 ELEV 664.2 KD	9941.	44.	9861.	36.
2 ELEV 664.9 KD	13528.	497.	12391.	640.
3 ELEV 665.2 KD	16571.	1282.	13614.	1675.
4 ELEV 667.7 KD	71145.	24490.	24806.	21849.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 090SVB

NO.	HW	CFS	HL	TW	CSM
0	657.40	0.00	0.00	0.00	0.00
1	664.63	234.00	0.40	664.23	10.00
2	664.94	360.00	0.0	664.94	50.00
3	665.25	390.00	0.0	665.25	100.00
4	667.72	545.00	0.0	667.72	500.00

MIN ROAD ELEVATION 664.30

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	22551.	6.00		65.70	657.40	657.10	0.012

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV091 DA= 1.3

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	657.7	0.0	0.0						
BANK FULL	661.8	56.5	137.6	0.0	0.0	0.0			
ZERO DAMG	661.8	56.5	137.6	0.0	0.0	0.0			
1	664.7	466.3	234.0	3.27	0.0	0.0	10.00	660.4	0.00015
2	665.0	612.9	360.0	4.11	0.0	0.0	50.00	661.1	0.00022
3	665.3	770.6	390.0	4.42	0.0	0.0	100.00	661.2	0.00018
4	667.7	2755.4	545.0	9.36	0.0	0.0	500.00	662.3	0.00002

SEGMENT TABLE FOR SECTION SV091

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	234.	18.	150.	66.
179.	VELOCITY FPS	1.03	0.14	1.24	0.30
2	DISCHARGE CFS	360.	48.	207.	106.
275.	VELOCITY FPS	1.27	0.22	1.61	0.39
3	DISCHARGE CFS	390.	78.	200.	112.
298.	VELOCITY FPS	1.12	0.25	1.48	0.35
4	DISCHARGE CFS	545.	231.	133.	181.
416.	VELOCITY FPS	0.37	0.18	0.70	0.14
1	ELEV 664.7 KO	18485.	552.	12575.	5358.
2	ELEV 665.0 KO	23721.	2674.	13988.	7060.
3	ELEV 665.3 KO	28363.	4704.	15229.	8430.
4	ELEV 667.7 KO	110499.	46886.	27051.	36562.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 0915V

NO.	HW	CFS	HL	TW	CSM
0	658.20	0.00	0.00	0.00	0.00
1	664.69	232.00	0.0	664.69	10.00
2	665.04	355.00	0.0	665.04	50.00
3	665.33	380.00	0.0	665.33	100.00
4	667.73	540.00	0.0	667.73	500.00

MIN ROAD ELEVATION 662.50

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	22551.	5.50		34.00	658.20	657.90	0.012

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV092 DA= 1.3

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	657.8	0.0	0.0						
BANK FULL	660.1	22.7	77.3	0.0	0.0	0.0			
ZERO DAMG	660.1	22.7	77.3	0.0	0.0	0.0			
1	664.7	1088.7	232.0	4.77	0.0	0.0	10.00	660.9	0.00002
2	665.1	1238.2	355.0	4.94	0.0	0.0	50.00	661.3	0.00003
3	665.3	1365.8	380.0	5.07	0.0	0.0	100.00	661.4	0.00003
4	667.7	2590.4	540.0	7.02	0.0	0.0	500.00	661.6	0.00001

SEGMENT TABLE FOR SECTION SV092

CSM		TOTAL	SEG NO 1 D	SEG NO 2 C	SEG NO 3 D
1	DISCHARGE CFS	232.	4.	65.	163.
181.	VELOCITY FPS	0.33	0.14	0.55	0.17
2	DISCHARGE CFS	355.	7.	93.	256.
277.	VELOCITY FPS	0.43	0.18	0.74	0.24
3	DISCHARGE CFS	380.	7.	94.	279.
297.	VELOCITY FPS	0.41	0.18	0.71	0.23
4	DISCHARGE CFS	540.	11.	99.	430.
422.	VELOCITY FPS	0.29	0.08	0.54	0.19
1	ELEV 664.7 KQ	51457.	931.	14524.	36002.
2	ELEV 665.1 KQ	61944.	1147.	16193.	44604.
3	ELEV 665.3 KQ	70568.	1335.	17564.	51668.
4	ELEV 667.7 KQ	166685.	3332.	30738.	132615.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV094 DA= 1.1

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	660.0	0.0	0.0						
ZERO DAMG	663.6	48.6	170.8	0.0	0.0	0.0			
BANK FULL	664.5	297.0	213.6	5.72	0.0	0.0			
1	664.8	437.5	230.0	6.16	0.0	0.0	10.00	662.6	0.00025
2	665.2	621.7	350.0	6.88	0.0	0.0	50.00	663.2	0.00027
3	665.5	740.1	370.0	7.34	0.0	0.0	100.00	663.3	0.00019
4	667.7	2212.4	530.0	9.96	0.0	0.0	500.00	663.8	0.00002

SEGMENT TABLE FOR SECTION SV094

CSM		TOTAL	SEG NO 1	2	3
			D	C	D
1	DISCHARGE CFS	230.	0.	102.	128.
211.	VELOCITY FPS	0.97	0.0	1.36	0.35
2	DISCHARGE CFS	350.	0.	120.	230.
321.	VELOCITY FPS	0.98	0.0	1.43	0.43
3	DISCHARGE CFS	370.	0.	115.	255.
339.	VELOCITY FPS	0.81	0.0	1.28	0.39
4	DISCHARGE CFS	530.	2.	80.	448.
486.	VELOCITY FPS	0.30	0.12	0.56	0.22
1	ELEV 664.8 KD	14425.	1.	6568.	7856.
2	ELEV 665.2 KD	21003.	1.	7758.	13243.
3	ELEV 665.5 KD	26759.	2.	8582.	18175.
4	ELEV 667.7 KD	123920.	364.	18942.	104614.

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

ROAD SECTION 094SV

NO.	HW	CFS	HL	TW	CSM
0	660.80	0.00	0.00	0.00	0.00
1	665.20	226.00	0.16	665.04	10.00
2	665.57	350.00	0.16	665.42	50.00
3	665.69	370.00	0.08	665.61	100.00
4	667.76	530.00	0.0	667.76	500.00

MIN ROAD ELEVATION 664.40

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	INF COEFF
1	1	41111.	3.70	10.50	48.70	660.80	660.50	0.012

DES PLAINES RIVER WATER SHED SILVER CREEK TRIB

RATING TABLE FOR SECTION SV095 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	661.7	0.0	0.0						
BANK FULL	664.0	114.2	147.1	0.0	0.0	0.0			
ZERO DAMG	664.0	114.2	147.1	0.0	0.0	0.0			
1	665.2	271.1	226.0	0.71	0.0	0.0	10.00	663.1	0.00020
2	665.6	336.3	350.0	0.80	0.0	0.0	50.00	663.4	0.00028
3	665.7	355.0	370.0	0.82	0.0	0.0	100.00	663.5	0.00027
4	667.8	811.4	530.0	1.22	0.0	0.0	500.00	663.8	0.00007

SEGMENT TABLE FOR SECTION SV095

CSM		TOTAL	SEG NO 1 B	SEG NO 2 C	SEG NO 3 D
1.	DISCHARGE CFS	226.	5.	219.	1.
222.	VELOCITY FPS	0.92	0.19	0.93	0.18
2	DISCHARGE CFS	350.	13.	333.	3.
343.	VELOCITY FPS	1.19	0.28	1.21	0.27
3	DISCHARGE CFS	370.	15.	351.	4.
363.	VELOCITY FPS	1.20	0.28	1.22	0.27
4	DISCHARGE CFS	530.	63.	450.	17.
520.	VELOCITY FPS	0.86	0.25	0.92	0.24
1	ELEV 665.2 KD	16004.	355.	15570.	79.
2	ELEV 665.6 KD	20959.	738.	20046.	175.
3	ELEV 665.7 KD	22490.	883.	21395.	212.
4	ELEV 667.8 KD	61516.	7205.	52440.	1872.

TAB 8

SECTION 8

DUPLICATE EFFECTIVE MODEL

DUPLICATE EFFECTIVE HEC-RAS

HEC-RAS Plan: Dup Eff River: Silver Creek Reach: Main

Reach	River Sta	Profile	Obs WS	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(ft)	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	0	10-YR		355.00	638.50	645.00	641.57	645.01	0.000301	1.13	469.14	337.00	0.09
Main	0	50-YR		550.00	638.50	645.50	642.95	645.52	0.000356	1.32	641.02	349.90	0.10
Main	0	100-YR		655.00	638.50	645.70	643.11	645.72	0.000390	1.41	711.48	354.66	0.11
Main	0	500-YR		875.00	638.50	646.20	643.37	646.22	0.000391	1.50	892.67	375.47	0.11
Main	1	10-YR		355.00	639.30	645.66		645.79	0.001349	2.87	123.50	29.43	0.25
Main	1	50-YR		550.00	639.30	646.32		646.55	0.002116	3.84	143.33	30.71	0.31
Main	1	100-YR		655.00	639.30	646.61		646.90	0.002529	4.30	152.22	31.27	0.34
Main	1	500-YR		875.00	639.30	647.13		647.55	0.003366	5.18	168.85	32.29	0.40
Main	1.5		Culvert										
Main	2	10-YR	645.95	350.00	639.30	645.88	642.34	645.99	0.001136	2.70	129.86	29.85	0.23
Main	2	50-YR	647.00	535.00	639.30	646.92	643.27	647.09	0.001414	3.30	162.00	31.87	0.26
Main	2	100-YR	647.50	640.00	639.30	647.51	643.64	647.71	0.001474	3.53	181.28	41.27	0.27
Main	2	500-YR	647.90	850.00	639.30	648.23	644.24	648.43	0.001391	3.73	376.83	501.68	0.26
Main	3	10-YR	646.20	350.00	639.30	646.15		646.25	0.000952	2.53	138.13	30.38	0.21
Main	3	50-YR	647.30	535.00	639.30	647.27		647.41	0.001172	3.09	173.14	32.55	0.24
Main	3	100-YR	647.90	640.00	639.30	647.87		648.03	0.001144	3.25	237.88	272.14	0.24
Main	3	500-YR	648.40	850.00	639.30	648.59		648.70	0.000846	3.02	599.47	732.32	0.21
Main	4	10-YR		310.00	639.40	646.27	644.64	646.85	0.007808	6.26	58.08	41.53	0.51
Main	4	50-YR		490.00	639.40	647.52		647.89	0.004745	5.72	140.13	89.49	0.41
Main	4	100-YR		585.00	639.40	648.15		648.39	0.003237	5.05	204.24	120.06	0.35
Main	4	500-YR		790.00	639.40	648.79		649.00	0.002792	4.99	299.25	173.90	0.33
Main	4.5		Culvert										
Main	6	10-YR	647.70	310.00	641.40	648.75	645.55	648.79	0.000741	2.33	283.59	170.20	0.16
Main	6	50-YR	649.10	490.00	641.40	651.23	647.09	651.23	0.000115	1.14	1080.77	412.78	0.07
Main	6	100-YR	649.70	585.00	641.40	651.31	647.38	651.32	0.000150	1.31	1115.96	437.50	0.08
Main	6	500-YR	650.30	790.00	641.40	651.50	647.85	651.52	0.000239	1.68	1227.93	630.03	0.10
Main	7	10-YR	648.70	300.00	643.00	649.32		649.44	0.000656	2.87	124.69	30.95	0.22
Main	7	50-YR	650.00	485.00	643.00	651.32		651.47	0.000576	3.32	214.03	108.69	0.22
Main	7	100-YR	650.50	570.00	643.00	651.42		651.63	0.000748	3.82	226.38	119.20	0.25
Main	7	500-YR	651.30	775.00	643.00	651.68		652.01	0.001185	4.92	259.97	143.97	0.31

OBSERVED WSEL FROM WSP-2

* ALL ELEVATIONS ARE ON NGVD '29.

HEC-RAS Plan: Dup Eff River: Silver Creek Reach: Main

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
Main	0	10-YR	645.01	645.00	0.01			156.03	140.09	58.87	337.00
Main	0	50-YR	645.52	645.50	0.02			228.25	179.85	141.90	349.90
Main	0	100-YR	645.72	645.70	0.02			265.54	200.37	189.10	354.66
Main	0	500-YR	646.22	646.20	0.02			337.72	232.42	304.86	375.47
Main	1	10-YR	645.79	645.66	0.13	0.72	0.06		355.00		29.43
Main	1	50-YR	646.55	646.32	0.23	0.93	0.11		550.00		30.71
Main	1	100-YR	646.90	646.61	0.29	1.04	0.13		655.00		31.27
Main	1	500-YR	647.55	647.13	0.42	1.13	0.20		875.00		32.29
Main	1.5		Culvert								
Main	2	10-YR	645.99	645.88	0.11				350.00		29.85
Main	2	50-YR	647.09	646.92	0.17				535.00		31.87
Main	2	100-YR	647.71	647.51	0.19			0.00	640.00	0.00	41.27
Main	2	500-YR	648.43	648.23	0.19			60.83	763.62	25.55	501.68
Main	3	10-YR	646.25	646.15	0.10	0.26	0.00		350.00		30.38
Main	3	50-YR	647.41	647.27	0.15	0.32	0.00		535.00		32.55
Main	3	100-YR	648.03	647.87	0.16	0.32	0.00	9.17	626.98	3.85	272.14
Main	3	500-YR	648.70	648.59	0.11	0.27	0.01	137.89	654.20	57.91	732.32
Main	4	10-YR	646.85	646.27	0.58	0.35	0.24	10.91	294.85	4.23	41.53
Main	4	50-YR	647.89	647.52	0.37	0.36	0.11	132.29	340.59	17.13	89.49
Main	4	100-YR	648.39	648.15	0.25	0.31	0.04	228.09	332.31	24.59	120.06
Main	4	500-YR	649.00	648.79	0.21	0.25	0.05	392.67	360.75	36.58	173.90
Main	4.5		Culvert								
Main	6	10-YR	648.79	648.75	0.05			142.60	149.11	18.30	170.20
Main	6	50-YR	651.23	651.23	0.01			359.80	101.51	28.69	412.78
Main	6	100-YR	651.32	651.31	0.01			433.35	117.52	34.13	437.50
Main	6	500-YR	651.52	651.50	0.01			616.36	153.76	19.88	630.03
Main	7	10-YR	649.44	649.32	0.12	0.62	0.02	15.72	277.57	6.72	30.95
Main	7	50-YR	651.47	651.32	0.16	0.19	0.04	31.51	440.62	12.86	108.69
Main	7	100-YR	651.63	651.42	0.21	0.25	0.06	36.83	514.57	18.60	119.20
Main	7	500-YR	652.01	651.68	0.33	0.40	0.10	51.78	684.72	38.49	143.97

TAB 9

SECTION 9

EXISTING CONDITIONS HYDRAULIC ANALYSIS

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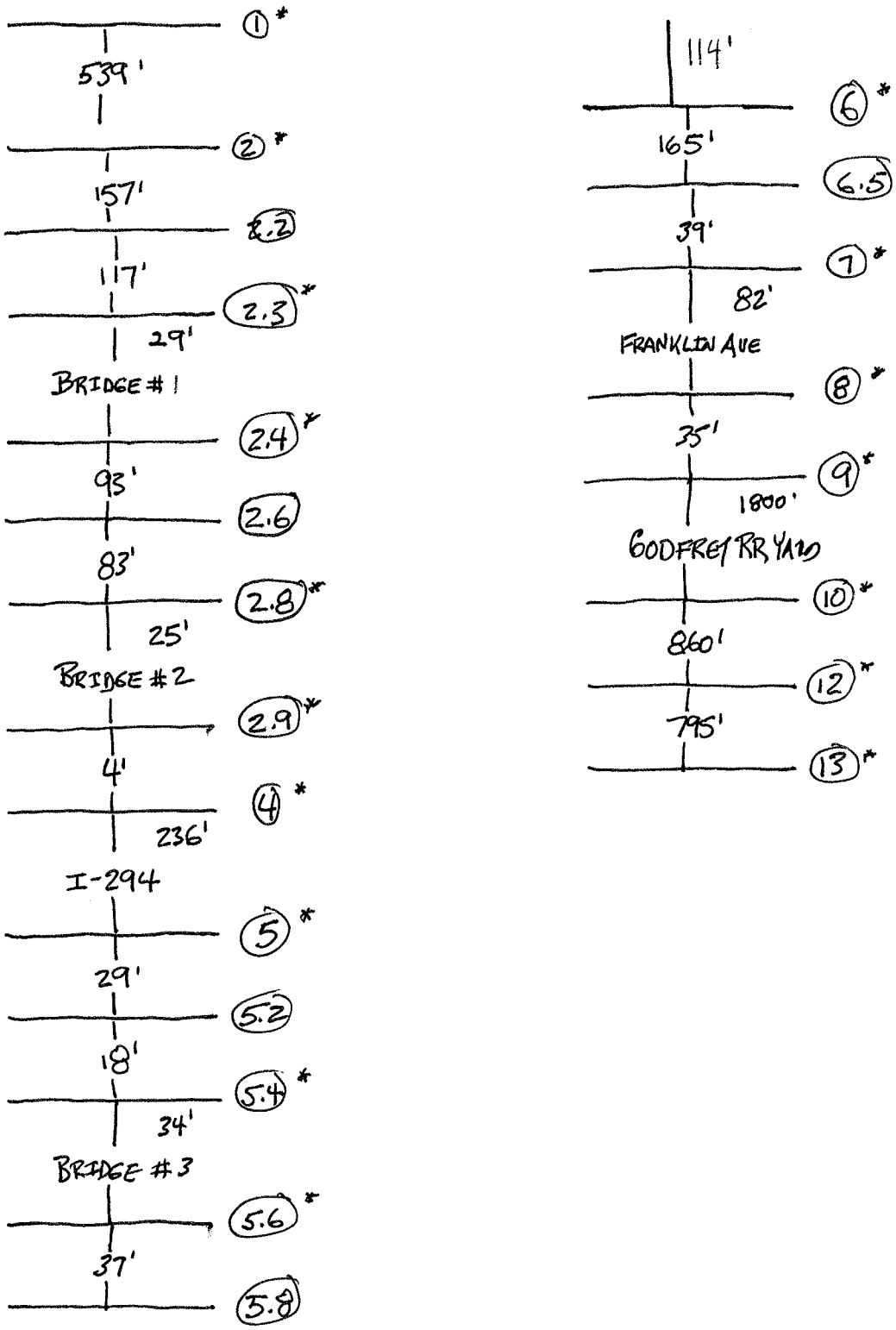
JOB 07-404 - EXISTING (INDEPENDENT) HEC-RAS SCHEMATIC
SHEET NO. 1 OF
CALCULATED BY DCO DATE 1/7/11
CHECKED BY DATE
SCALE —

X-SEC / HEC-RAS ID
1 / (1)

* = SURVEYED CROSS-SECTION



EXISTING CONDITIONS
HEC-RAS
(NAVD '88)

HEC-RAS Plan: CE-EX River: Silver Creek Reach: Main

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	1	10-YR	360.00	637.45	644.50	640.09	644.51	0.000085	1.11	658.56	384.98	0.09
Main	1	50-YR	560.00	637.45	644.80	640.86	644.82	0.000141	1.48	777.89	410.58	0.11
Main	1	100-YR	660.00	637.45	645.10	641.20	645.12	0.000138	1.52	904.89	436.18	0.11
Main	1	500-YR	880.00	637.45	645.50	641.82	645.52	0.000158	1.70	1086.21	470.33	0.12
Main	2	10-YR	355.00	637.76	644.55		644.60	0.000266	1.98	279.86	141.48	0.15
Main	2	50-YR	550.00	637.76	644.88		644.96	0.000456	2.70	327.21	145.69	0.20
Main	2	100-YR	655.00	637.76	645.17		645.27	0.000486	2.89	370.84	149.46	0.21
Main	2	500-YR	875.00	637.76	645.58		645.70	0.000601	3.35	432.67	154.64	0.23
Main	2.2	10-YR	355.00	638.25	644.60		644.64	0.000251	1.67	314.48	166.58	0.15
Main	2.2	50-YR	550.00	638.25	644.98		645.03	0.000391	2.21	377.51	173.07	0.19
Main	2.2	100-YR	655.00	638.25	645.28		645.34	0.000398	2.33	430.27	175.31	0.19
Main	2.2	500-YR	875.00	638.25	645.71		645.79	0.000461	2.66	506.71	178.12	0.21
Main	2.3	10-YR	355.00	638.76	644.63	640.64	644.69	0.000363	1.90	186.83	56.69	0.17
Main	2.3	50-YR	550.00	638.76	645.01	641.22	645.12	0.000642	2.67	206.14	66.45	0.23
Main	2.3	100-YR	655.00	638.76	645.30	641.48	645.44	0.000720	2.96	221.22	71.38	0.25
Main	2.3	500-YR	875.00	638.76	645.73	642.01	645.93	0.000943	3.60	242.72	78.40	0.29
Main	2.35		Bridge									
Main	2.4	10-YR	355.00	638.12	644.66	640.54	644.71	0.000201	1.80	210.84	135.94	0.14
Main	2.4	50-YR	550.00	638.12	645.06	641.10	645.16	0.000371	2.57	230.80	159.28	0.19
Main	2.4	100-YR	655.00	638.12	645.37	641.37	645.49	0.000437	2.88	245.96	175.20	0.21
Main	2.4	500-YR	875.00	638.12	645.81	641.89	646.00	0.000603	3.55	268.26	179.96	0.25
Main	2.6	10-YR	355.00	639.10	644.64	642.38	644.77	0.001107	2.96	125.25	315.13	0.29
Main	2.6	50-YR	550.00	639.10	645.03	643.12	645.27	0.001759	4.04	145.10	319.37	0.38
Main	2.6	100-YR	655.00	639.10	645.33	643.46	645.62	0.001861	4.38	161.04	322.81	0.39
Main	2.6	500-YR	875.00	639.10	645.76	644.10	646.16	0.002249	5.18	185.10	327.80	0.44
Main	2.8	10-YR	355.00	638.93	644.80	641.31	644.84	0.000295	1.65	214.54	108.94	0.16
Main	2.8	50-YR	550.00	638.93	645.31	641.84	645.39	0.000450	2.24	245.74	118.23	0.20
Main	2.8	100-YR	655.00	638.93	645.65	642.10	645.74	0.000487	2.46	266.44	125.04	0.21
Main	2.8	500-YR	875.00	638.93	646.19	642.56	646.33	0.000588	2.92	299.62	166.15	0.23
Main	2.85		Bridge									
Main	2.9	10-YR	355.00	639.81	644.84	641.25	644.86	0.000117	1.27	280.47	202.04	0.10
Main	2.9	50-YR	550.00	639.81	645.38	641.60	645.42	0.000193	1.75	313.43	207.22	0.14
Main	2.9	100-YR	655.00	639.81	645.75	641.77	645.81	0.000217	1.95	336.13	213.25	0.15
Main	2.9	500-YR	875.00	639.81	646.37	642.10	646.46	0.000271	2.34	374.30	236.84	0.17
Main	4	10-YR	355.00	638.33	644.82	640.77	644.88	0.000258	2.24	182.59	161.08	0.16
Main	4	50-YR	550.00	638.33	645.34	641.33	645.47	0.000466	3.17	199.14	166.16	0.22
Main	4	100-YR	655.00	638.33	645.70	641.60	645.86	0.000550	3.57	210.62	169.68	0.24
Main	4	500-YR	875.00	638.33	646.29	642.12	646.54	0.000738	4.37	229.68	170.50	0.28
Main	4.5		Culvert									
Main	5	10-YR	355.00	638.50	644.82	641.43	644.92	0.000408	2.48	143.05	77.95	0.19
Main	5	50-YR	550.00	638.50	645.38	642.01	645.56	0.000695	3.47	158.54	78.80	0.26
Main	5	100-YR	655.00	638.50	645.78	642.29	646.01	0.000782	3.86	169.91	78.80	0.28
Main	5	500-YR	875.00	638.50	646.53	642.83	646.86	0.000946	4.59	190.95	78.80	0.31
Main	5.2	10-YR	355.00	638.50	644.90		644.94	0.000291	1.59	223.97	66.92	0.15
Main	5.2	50-YR	550.00	638.50	645.53		645.59	0.000449	2.04	269.39	76.39	0.19
Main	5.2	100-YR	655.00	638.50	645.98		646.05	0.000467	2.15	305.01	82.66	0.20
Main	5.2	500-YR	875.00	638.50	646.82		646.90	0.000412	2.31	400.07	143.73	0.19
Main	5.4	10-YR	355.00	638.74	644.90	640.87	644.95	0.000278	1.78	199.15	47.93	0.15
Main	5.4	50-YR	550.00	638.74	645.52	641.44	645.61	0.000422	2.41	228.60	51.57	0.19
Main	5.4	100-YR	655.00	638.74	645.97	641.72	646.07	0.000447	2.63	249.44	71.48	0.20
Main	5.4	500-YR	875.00	638.74	646.80	642.26	646.94	0.000491	3.03	288.55	101.18	0.22
Main	5.5		Bridge									
Main	5.6	10-YR	355.00	639.29	644.91	641.64	644.99	0.000528	2.24	158.75	48.78	0.21
Main	5.6	50-YR	550.00	639.29	645.55	642.33	645.68	0.000776	2.94	187.06	60.22	0.26
Main	5.6	100-YR	655.00	639.29	646.00	642.64	646.15	0.000808	3.15	207.64	71.29	0.26
Main	5.6	500-YR	875.00	639.29	646.92	643.27	647.11	0.000771	3.48	251.18	86.94	0.27
Main	5.8	10-YR	355.00	637.80	644.94		645.01	0.000406	2.04	173.71	44.72	0.18
Main	5.8	50-YR	550.00	637.80	645.60		645.71	0.000581	2.70	205.80	53.97	0.22
Main	5.8	100-YR	655.00	637.80	646.05		646.18	0.000596	2.92	231.65	61.63	0.23

HEC-RAS Plan: CE-EX River: Silver Creek Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	5.8	500-YR	875.00	637.80	646.99		647.14	0.000572	3.21	304.06	93.00	0.23
Main	6	10-YR	355.00	637.13	644.99		645.06	0.000387	2.11	167.96	37.86	0.18
Main	6	50-YR	550.00	637.13	645.66		645.78	0.000634	2.83	194.55	41.12	0.23
Main	6	100-YR	655.00	637.13	646.11		646.26	0.000697	3.07	213.81	46.13	0.24
Main	6	500-YR	875.00	637.13	647.04		647.22	0.000725	3.41	269.03	80.19	0.25
Main	6.5	10-YR	355.00	638.30	645.05		645.12	0.000380	2.34	186.27	54.39	0.18
Main	6.5	50-YR	550.00	638.30	645.76		645.88	0.000550	3.08	227.02	60.43	0.23
Main	6.5	100-YR	655.00	638.30	646.22		646.36	0.000575	3.31	255.86	63.92	0.24
Main	6.5	500-YR	875.00	638.30	647.16		647.33	0.000585	3.68	318.90	71.07	0.24
Main	7	10-YR	310.00	638.49	645.06	640.43	645.13	0.000219	2.18	142.30	48.17	0.15
Main	7	50-YR	490.00	638.49	645.76	641.08	645.91	0.000387	3.11	157.77	52.55	0.20
Main	7	100-YR	585.00	638.49	646.22	641.39	646.40	0.000450	3.49	167.76	55.39	0.22
Main	7	500-YR	790.00	638.49	647.26	642.01	647.37	0.000343	2.66	333.42	76.70	0.17
Main	7.5		Culvert									
Main	8	10-YR	310.00	638.20	645.15	640.73	645.23	0.000250	2.25	137.70	44.15	0.16
Main	8	50-YR	490.00	638.20	646.04	641.38	646.19	0.000402	3.12	157.18	45.69	0.21
Main	8	100-YR	585.00	638.20	646.64	641.70	646.82	0.000438	3.43	170.44	46.50	0.22
Main	8	500-YR	790.00	638.20	648.08	642.32	648.17	0.000168	2.34	371.41	46.50	0.14
Main	9	10-YR	310.00	639.28	645.19	640.91	645.24	0.000182	1.84	168.44	43.98	0.13
Main	9	50-YR	490.00	639.28	646.12	641.45	646.21	0.000277	2.51	195.26	46.43	0.17
Main	9	100-YR	585.00	639.28	646.74	641.71	646.85	0.000294	2.74	213.25	48.07	0.18
Main	9	500-YR	790.00	639.28	648.06	642.23	648.21	0.000310	3.14	251.51	52.00	0.19
Main	9.5		Culvert									
Main	10	10-YR	310.00	640.94	646.03	642.58	646.10	0.000277	2.04	152.30	51.49	0.16
Main	10	50-YR	490.00	640.94	648.31	643.10	648.38	0.000195	2.20	222.81	66.35	0.14
Main	10	100-YR	585.00	640.94	649.90	643.35	649.97	0.000143	2.15	272.05	101.88	0.13
Main	10	500-YR	790.00	640.94	651.60	643.84	651.63	0.000071	1.68	653.86	117.32	0.09
Main	12	10-YR	300.00	640.14	646.40		646.54	0.001071	3.02	99.39	27.80	0.28
Main	12	50-YR	485.00	640.14	648.56		648.68	0.000687	2.88	168.62	36.28	0.24
Main	12	100-YR	570.00	640.14	650.07		650.16	0.000373	2.51	239.30	64.84	0.18
Main	12	500-YR	775.00	640.14	651.66		651.75	0.000274	2.52	376.20	99.09	0.16

CORRECTED EFFECTIVE / EXISTING REPORT

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Silver Creek EOWB
Project File : Silver.prj
Run Date and Time: 10/1/2012 12:34:38 PM

Project in English units

PLAN DATA

Plan Title: Corrected Effective - Existing
Plan File : C:\Users\doliphant\Desktop\2007\Silver Creek\Silver.p01

Geometry Title: Corrected Effective - Existing
Geometry File : C:\Users\doliphant\Desktop\2007\Silver Creek\Silver.g04

Flow Title : FIS Flows
Flow File : C:\Users\doliphant\Desktop\2007\Silver Creek\Silver.f01

Plan Summary Information:
Number of: Cross Sections = 21 Multiple Openings = 0
Culverts = 3 Inline Structures = 0
Bridges = 3 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: FIS Flows
Flow File : C:\Users\doliphant\Desktop\2007\Silver Creek\Silver.f01

Flow Data (cfs)

River	Reach	RS	10-YR	50-YR	100-YR	500-YR
Silver Creek	Main	12	300	485	570	775
Silver Creek	Main	10	310	490	585	790
Silver Creek	Main	6.5	355	550	655	875
Silver Creek	Main	1	360	560	660	880

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Silver Creek	Main	10-YR		Known WS = 644.5
Silver Creek	Main	50-YR		Known WS = 644.8
Silver Creek	Main	100-YR		Known WS = 645.1
Silver Creek	Main	500-YR		Known WS = 645.5

Observed Water Surface Marks

River	Reach	RS	10-YR	50-YR	100-YR	500-YR
Silver Creek	Main	8	645.5	645.9	646.9	647.5
Silver Creek	Main	7	645.3	645.8	646	646.5
Silver Creek	Main	5	645.1	645.5	645.8	646.3
Silver Creek	Main	4	644.9	645.4	645.6	646.1
Silver Creek	Main	2	644.6	644.9	645.3	645.7

GEOMETRY DATA

Geometry Title: Corrected Effective - Existing
Geometry File : C:\Users\doliphant\Desktop\2007\Silver Creek\Silver.g04

CROSS SECTION

RIVER: Silver Creek
REACH: Main RS: 12

INPUT
Description: Surveyed Cross-Section
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5.2	652	5.3	650.89	19.4	650.82	39.3	649.81	56.7	649.16
68.5	642.98	70.4	641.15	75.3	640.14	78.8	640.43	81	642.04
94.3	648.64	98.2	649.77	103.7	651.61	107.4	651.93	107.7	652.52

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5.2	.05	56.7	.035	94.3	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
56.7	94.3	915	860	800	.1	.3

CROSS SECTION

RIVER: Silver Creek
REACH: Main RS: 10

INPUT
Description: Surveyed Cross-Section, US Face Godfrey RR Yard Culvert
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	652	29	645.88	37	642.24	39.5	641.88	42.3	640.94
48.68	641.03	63.44	641.19	70.5	641.19	73.7	642.66	84.95	648.93
109.24	649.3	121	652						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	37	.035	73.7	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
37	73.7	1800	1800	1800	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	40	651	F
71	121	651	F

CULVERT

RIVER: Silver Creek
REACH: Main RS: 9.5

INPUT
Description: Godfrey Railroad Yard Culvert
Distance from Upstream XS = 50
Deck/Roadway Width = 1700
Weir Coefficient = 3.1
Upstream Deck/Roadway Coordinates
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
0	651	640	125	651	640

Upstream Bridge Cross Section Data
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	652	29	645.88	37	642.24	39.5	641.88	42.3	640.94
48.68	641.03	63.44	641.19	70.5	641.19	73.7	642.66	84.95	648.93
109.24	649.3	121	652						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	37	.035	73.7	.05

Bank Sta: Left	Right	Coeff Contr.	Expan.
37	73.7	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	40	651	F
71	121	651	F

Downstream Deck/Roadway Coordinates
num= 5

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
45	651	0	61	651	0	85	651	0
91	651	0	115	651	0			

Downstream Bridge Cross Section Data
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
45	649	47	647.19	50.5	641.37	53	639.4	60.6	639.37
65.9	639.28	80.4	639.43	84.15	641.265	101.9	649.94		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
45	.05	50.5	.035	84.15	.05

Bank Sta: Left	Right	Coeff Contr.	Expan.
50.5	84.15	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
45	53	651	F

```
      82   101.9     651       F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  2

Culvert Name      Shape      Rise    Span
Culvert #1            Box    3.75      14
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                10    1780     .013     .013        0                  .5               1
Upstream   Elevation =  641.03
           Centerline Station =  48
Downstream Elevation =  639.4
           Centerline Station =  60

Culvert Name      Shape      Rise    Span
Culvert #2            Box    3.75      14
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                10    1780     .013     .013        0                  .5               1
Upstream   Elevation =  641.19
           Centerline Station =  63.5
Downstream Elevation =  639.4
           Centerline Station =  75

CROSS SECTION


RIVER: Silver Creek
REACH: Main               RS: 9

INPUT
Description: Surveyed Cross-Section, DS Face Godfrey RR Yard Culvert
Station Elevation Data    num=       9
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
      45      649       47   647.19     50.5   641.37       53   639.4     60.6   639.37
    65.9   639.28     80.4   639.43    84.15  641.265    101.9   649.94

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
      45     .05     50.5    .035    84.15     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          50.5   84.15               35      35      35             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
      45      53     651       F
      82   101.9     651       F

CROSS SECTION


RIVER: Silver Creek
REACH: Main               RS: 8

INPUT
Description: Surveyed Cross-Section, U/S Face Franklin Avenue
Station Elevation Data    num=      13
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
      20      649       20   646.49      27   640.41     30.4   639.26     35.8   638.96
    41.5   638.85     42.7    638.8    48.3   638.89     53.6   639.06     54.3    638.2
    62.9   640.36     66.5   646.53    66.5      649

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
      20     .05       27    .035     62.9     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           27    62.9                82      82      82             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
      20      33    646.9       F
      55    66.5    646.9       F

CULVERT


RIVER: Silver Creek
REACH: Main               RS: 7.5

INPUT
Description: Franklin Avenue
Distance from Upstream XS =      15
Deck/Roadway Width        =      50
Weir Coefficient          =     3.1
Upstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0   646.3              18  646.68              23   647.4
      43     648              65   646.9              89  647.61
```

Upstream Bridge Cross Section Data
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
20	649	20	646.49	27	640.41	30.4	639.26	35.8	638.96
41.5	638.85	42.7	638.8	48.3	638.89	53.6	639.06	54.3	638.2
62.9	640.36	66.5	646.53	66.5	649				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
20	.05	27	.035	62.9	.05

Bank Sta: Left Right Coeff Contr. Expan.
27 62.9 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
20	33	646.9	F
55	66.5	646.9	F

Downstream Deck/Roadway Coordinates
num= 7

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	646.3		18	646.68		23	647.4	
43	648		65	646.9		89	647.61	
94.9	648							

Downstream Bridge Cross Section Data
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
28.7	648	28.7	646.6	47.7	643.4	48.6	643.89	57.8	640.86
58.5	640.58	61	638.57	67.1	638.62	72	638.5	73.5	638.49
78.8	638.64	84.1	638.69	86.5	646.66	94.9	646.78	123	648.07

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
28.7	.05	48.6	.035	86.5	.05

Bank Sta: Left Right Coeff Contr. Expan.
48.6 86.5 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
28.7	62	646.9	F
84	123	646.9	F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins = 648
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name	Shape	Rise	Span
Culvert #1	Box	6	10

FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG

Culvert	Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef	Exit Loss Coef
	1	80	.012	.012	0	.5	1

Number of Barrels = 2
Upstream Elevation = 638.9
Centerline Stations

Sta.	Sta.
38	50

Downstream Elevation = 638.6
Centerline Stations

Sta.	Sta.
67	79

CROSS SECTION

RIVER: Silver Creek
REACH: Main RS: 7

INPUT
Description: Surveyed Cross-Section, D/S Face Franklin Avenue
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
28.7	648	28.7	646.6	47.7	643.4	48.6	643.89	57.8	640.86
58.5	640.58	61	638.57	67.1	638.62	72	638.5	73.5	638.49
78.8	638.64	84.1	638.69	86.5	646.66	94.9	646.78	123	648.07

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
28.7	.05	48.6	.035	86.5	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
48.6 86.5 35 39 50 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
28.7	62	646.9	F
84	123	646.9	F

CROSS SECTION

RIVER: Silver Creek
REACH: Main RS: 6.5

```
INPUT
Description: 1 ft. Topo
Station Elevation Data    num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     -15     648      -5     647       0     646       7     645    10.5     644
      14     643    30.5     642    36.5     641      43   638.3      47   638.3
      54     641    56.5     642      58     643    59.5     644      61     645
    62.5     646      64     647      67     648

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     -15     .05    30.5    .035    56.5     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          30.5    56.5              165     165     165             .1       .3

CROSS SECTION


RIVER: Silver Creek
REACH: Main               RS: 6

INPUT
Description: Surveyed Cross-Section
Station Elevation Data    num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  647.22    27.4  646.84    48.3  645.98    56.6  643.08    61.7  640.21
    63.9  638.51    69.6  637.13    74.9  637.75    80.6   640.1    80.9  640.89
    95.3  648.17    96.8  648.55

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05    48.3    .035    95.3     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          48.3    95.3              114     114     114             .1       .3

CROSS SECTION


RIVER: Silver Creek
REACH: Main               RS: 5.8

INPUT
Description: 1 ft. Topo
Station Elevation Data    num=      19
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     -90     648       0     647    30.5     646      43     645    45.5     644
    48.5     643      51     642    54.5     641    57.5     640      66   637.8
    74.5     640    77.5     641    80.5     642    82.5     643    85.5     644
      88     645    90.5     646    93.5     647    96.5     648

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     -90     .05      43    .035      88     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           43      88              37      37      37             .1       .3

CROSS SECTION


RIVER: Silver Creek
REACH: Main               RS: 5.6

INPUT
Description: Surveyed Cross-Section, U/S Face RR Spur
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    -104     648      -4     647       0  646.43      27  645.19    40.6  642.96
    43.8   640.9    45.7  639.33    54.2  639.29    63.6  639.77    65.5  640.99
    67.1  641.44    83.9  647.07   110.5  647.71

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    -104     .05      -4    .035    83.9     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           -4    83.9              34      34      34             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    -104      34  647.74        F
      81   110.5     648        F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  670.04   110.5     649

BRIDGE


RIVER: Silver Creek
REACH: Main               RS: 5.5

INPUT
Description: RR Spur
Distance from Upstream XS =       12
Deck/Roadway Width        =       10
Weir Coefficient          =      3.1
Upstream  Deck/Roadway Coordinates
    num=        7
```

```
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
    -105  647.74               0  647.74               34  647.74
      34  647.74   646.2       81  647.74   646.2       81  647.74
     120  647.74

Upstream Bridge Cross Section Data
Station Elevation Data     num=      13
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    -104      648       -4      647        0   646.43       27   645.19     40.6   642.96
    43.8    640.9     45.7   639.33     54.2   639.29     63.6   639.77     65.5   640.99
    67.1   641.44     83.9   647.07    110.5   647.71

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
    -104     .05       -4    .035     83.9     .05

Bank Sta: Left   Right     Coeff Contr.    Expan.
            -4    83.9             .3        .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
    -104      34  647.74        F
      81   110.5     648        F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  670.04   110.5     649

Downstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
    -105  647.74               0  647.74               34  647.74
      34  647.74   646.2       81  647.74   646.2       81  647.74
     120  647.74

Downstream Bridge Cross Section Data
Station Elevation Data     num=      11
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0   647.35     32.5   645.99     39.7   640.84     42.7   639.26     56.8   638.74
    65.8   639.16     69.2   640.84     71.7   642.57     84.8   645.54    112.3   646.15
     115      647

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05     32.5    .035     84.8     .05

Bank Sta: Left   Right     Coeff Contr.    Expan.
          32.5    84.8             .3        .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0      34  647.74        F
      81     115  647.74        F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  2

Pier Data
Pier Station     Upstream=      50    Downstream=      49
Upstream     num=       2
    Width   Elev    Width   Elev
      1.2     638      1.2     647
Downstream     num=       2
    Width   Elev    Width   Elev
      1.2     638      1.2     647

Pier Data
Pier Station     Upstream=      66    Downstream=      65
Upstream     num=       2
    Width   Elev    Width   Elev
      1.2     638      1.2     647
Downstream     num=       2
    Width   Elev    Width   Elev
      1.2     638      1.2     647

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: Silver Creek
REACH: Main               RS: 5.4
```

```
INPUT
Description: Surveyed Cross-Section, D/S Face RR Spur
Station Elevation Data     num=       11
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0  647.35     32.5  645.99     39.7  640.84     42.7  639.26     56.8  638.74
    65.8  639.16     69.2  640.84     71.7  642.57     84.8  645.54    112.3  646.15
     115     647

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05     32.5    .035     84.8     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         32.5    84.8                 18      18      18             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0      34  647.74        F
      81     115  647.74        F

CROSS SECTION


RIVER: Silver Creek
REACH: Main               RS: 5.2

INPUT
Description: 1 ft. Topo
Station Elevation Data     num=       20
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       0      648      116      647      150      646      157      645      159      644
     161      643      163      642      165      641      167      640    177.6   638.89
   186.2    638.5    193.1   639.04      194      640      196      641      199      642
     202      643      208      644      226      645      233      646      273      647

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .05      150    .035      233     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         150     233                 29      29      29             .1      .3

CROSS SECTION


RIVER: Silver Creek
REACH: Main               RS: 5

INPUT
Description: Surveyed Cross-Section, vertical walls extended
Station Elevation Data     num=       15
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
  25.501      648   25.501   645.09   42.001   639.89   50.599    638.5     57.5   639.04
    58.1   640.11     60.8   640.12     62.5   640.46   63.701   641.18     69.9    640.7
  75.899   640.22       78   641.22   90.701   643.04    104.3   643.13    104.3      648

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
  25.501     .05   42.001    .035     69.9     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        42.001    69.9                236     236     236             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
  25.501      42     670        F
      70   104.3     670        F

CULVERT


RIVER: Silver Creek
REACH: Main               RS: 4.5

INPUT
Description: Tri-State Tollway (I-294)
Distance from Upstream XS =       5
Deck/Roadway Width        =     219
Weir Coefficient          =     3.1
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0     670              150     670

Upstream Bridge Cross Section Data
Station Elevation Data     num=       15
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
  25.501      648   25.501   645.09   42.001   639.89   50.599    638.5     57.5   639.04
    58.1   640.11     60.8   640.12     62.5   640.46   63.701   641.18     69.9    640.7
  75.899   640.22       78   641.22   90.701   643.04    104.3   643.13    104.3      648

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
  25.501     .05   42.001    .035     69.9     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
        42.001    69.9             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
  25.501      42     670        F
      70   104.3     670        F

Downstream  Deck/Roadway Coordinates
```

```
    num=       4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     -10     670               0     670             180     670
     200     670

Downstream Bridge Cross Section Data
Station Elevation Data    num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0     648       0  645.78    42.6  641.42    57.9  641.24  65.899  641.41
    70.9  640.57    83.6  640.43    86.1  639.64    91.4  639.97    95.3  638.61
   103.6  638.33   107.8   638.5   110.5  639.75   113.5  639.47 127.599  639.96
   136.5  640.29   170.5   644.4   170.5     648

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05    91.4    .035   110.5     .05

Bank Sta: Left   Right    Coeff Contr.    Expan.
          91.4   110.5            .3        .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  91.001     670       F
 122.867   170.5     670       F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =     670
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1           Box       8      12
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                  2     220     .012     .012        0                   .5               1
Number of Barrels =  2
Upstream   Elevation =  637.11
Centerline Stations
    Sta.    Sta.
      50    62.5
Downstream Elevation =  636.99
Centerline Stations
    Sta.    Sta.
     100   113.5

CROSS SECTION


RIVER: Silver Creek
REACH: Main               RS: 4

INPUT
Description: Surveyed Cross-Section, vertical walls extended
Station Elevation Data    num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0     648       0  645.78    42.6  641.42    57.9  641.24  65.899  641.41
    70.9  640.57    83.6  640.43    86.1  639.64    91.4  639.97    95.3  638.61
   103.6  638.33   107.8   638.5   110.5  639.75   113.5  639.47 127.599  639.96
   136.5  640.29   170.5   644.4   170.5     648

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05    91.4    .035   110.5     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
          91.4   110.5               7       7       7             .3        .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  91.001     670       F
 122.867   170.5     670       F

CROSS SECTION


RIVER: Silver Creek
REACH: Main               RS: 2.9

INPUT
Description: Surveyed Cross-Section, US FACE RR SOUTH TOLLWAY
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  646.63    32.7  645.66    46.8  643.13    58.7  642.91    63.6   642.5
    71.5  640.76    82.7  639.81   112.4  639.98   118.8  640.59   129.2   641.1
   138.9  642.98   162.6  641.28     232     643     248     647

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05    46.8    .035   138.9     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
          46.8   138.9              25      25      25             .3        .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0      68  646.95       F
     129     248  646.95       F
```

BRIDGE

RIVER: Silver Creek
REACH: Main RS: 2.85

INPUT
Description: RR Spur
Distance from Upstream XS = 7
Deck/Roadway Width = 12
Weir Coefficient = 3.1
Upstream Deck/Roadway Coordinates
num= 8

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-100 646.95		0 646.95		68 646.95	
68 646.95	645.35	129 646.95	645.35	129 646.95	
180 646.95		250 646.95			

Upstream Bridge Cross Section Data
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	646.63	32.7	645.66	46.8	643.13	58.7	642.91	63.6	642.5
71.5	640.76	82.7	639.81	112.4	639.98	118.8	640.59	129.2	641.1
138.9	642.98	162.6	641.28	232	643	248	647		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	46.8	.035	138.9	.05

Bank Sta: Left Right Coeff Contr. Expan.
46.8 138.9 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	68	646.95	F
129	248	646.95	F

Downstream Deck/Roadway Coordinates
num= 8

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-100 646.95		0 646.95		35 646.95	
35 646.95	645.35	96 646.95	645.35	96 646.95	
180 646.95		250 646.95			

Downstream Bridge Cross Section Data
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-54	647	-4	646	0	645.67	23.6	645.65	32.1	644.8
48.9	640.5	50.9	639.44	55.8	638.93	66.9	639.27	70.8	640.52
79.3	640.58	89.6	644.61	98.9	644.66	123.5	644.47	134.6	644.01
159	647								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-54	.05	32.1	.035	98.9	.05

Bank Sta: Left Right Coeff Contr. Expan.
32.1 98.9 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-54	35	646.95	F
96	159	646.95	F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Piers = 3

Pier Data
Pier Station Upstream= 84 Downstream= 51
Upstream num= 2

Width	Elev	Width	Elev
1	638	1	646

Downstream num= 2

Width	Elev	Width	Elev
1	638	1	646

Pier Data
Pier Station Upstream= 99 Downstream= 66
Upstream num= 2

Width	Elev	Width	Elev
1	638	1	646

Downstream num= 2

Width	Elev	Width	Elev
1	638	1	646

Pier Data
Pier Station Upstream= 115 Downstream= 82
Upstream num= 2

Width	Elev	Width	Elev
1	638	1	646

Downstream num= 2

Width	Elev	Width	Elev
1	638	1	646

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Energy Only

Additional Bridge Parameters
Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Silver Creek
REACH: Main RS: 2.8

INPUT
Description: Surveyed Cross-Section, DS FACE RR SOUTH TOLLWAY
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-54	647	-4	646	0	645.67	23.6	645.65	32.1	644.8
48.9	640.5	50.9	639.44	55.8	638.93	66.9	639.27	70.8	640.52
79.3	640.58	89.6	644.61	98.9	644.66	123.5	644.47	134.6	644.01
159	647								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-54	.05	32.1	.035	98.9	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
32.1	98.9	80	83	85	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-54	35	646.95	F
96	159	646.95	F

CROSS SECTION

RIVER: Silver Creek
REACH: Main RS: 2.6

INPUT
Description: Cross-Section from 1 ft. aerial topogrpahy, channel invert interpolated between surveyed x-sections, ROB detention basin blocked
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	648	84	647	102	647	106.5	648	111	649
113.5	649	119.5	648	124	647	129.5	646	135	645
140	644	145	643	149	642	151.5	641	154.5	640
160	639.1	164	640	168.5	641	170.5	642	173	643
177.5	644	187	644	215	634	389	634	460	646
463	647								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	140	.035	177.5	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
140	177.5	60	93	115	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
187	500	648	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
187	500	644

CROSS SECTION

RIVER: Silver Creek
REACH: Main RS: 2.4

INPUT
Description: Surveyed Cross-Section, US FACE RR SOUTH OF TOLLWAY
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-4	646	0	645.42	11.4	643.16	29.5	643.56	37.5	639.93
39.8	638.12	50.3	639.08	63.4	638.93	70.9	638.87	84.2	638.66
86	639.6	93.1	643.01	103.5	643.06	107.2	645.3	131	644.86
166.7	643.97	170	644	174	645	178	646		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-4	.05	29.5	.035	93.1	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
29.5	93.1	29	29	29	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-4	57	647.89	F
107	178	647.89	F

BRIDGE

RIVER: Silver Creek
REACH: Main RS: 2.35

INPUT
Description: RR Spur
Distance from Upstream XS = 3
Deck/Roadway Width = 18
Weir Coefficient = 3.1
Upstream Deck/Roadway Coordinates
num= 7

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
-4	647.89		57	647.89		57	647.89	646.3
107	647.89	646.3	107	647.89		160	647.89	
180	647.89							

Upstream Bridge Cross Section Data
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-4	646	0	645.42	11.4	643.16	29.5	643.56	37.5	639.93
39.8	638.12	50.3	639.08	63.4	638.93	70.9	638.87	84.2	638.66
86	639.6	93.1	643.01	103.5	643.06	107.2	645.3	131	644.86
166.7	643.97	170	644	174	645	178	646		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-4	.05	29.5	.035	93.1	.05

Bank Sta: Left Right Coeff Contr. Expan.
29.5 93.1 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-4	57	647.89	F
107	178	647.89	F

Downstream Deck/Roadway Coordinates
num= 4

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	647.89		33	647.89	646.3	84	647.89	646.3
160	647.89							

Downstream Bridge Cross Section Data
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
25	646	29	645	33.1	644.67	48.3	643.93	56.2	639.43
58.9	638.89	72.3	638.76	80.6	638.78	82.5	639.48	91.5	646.34
108	644.51	113.6	646.91	144.4	647.25				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
25	.05	29	.035	91.5	.05

Bank Sta: Left Right Coeff Contr. Expan.
29 91.5 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
25	33	647.89	F
84	144.4	647.89	F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins = 647.89
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Piers = 3

Pier Data
Pier Station Upstream= 60 Downstream= 49
Upstream num= 2

Width	Elev	Width	Elev
1	638	1	646.5

Downstream num= 2

Width	Elev	Width	Elev
1	638	1	646.5

Pier Data
Pier Station Upstream= 76 Downstream= 64
Upstream num= 2

Width	Elev	Width	Elev
1	638	1	646.5

Downstream num= 2

Width	Elev	Width	Elev
1	638	1	646.5

Pier Data
Pier Station Upstream= 92 Downstream= 83
Upstream num= 2

Width	Elev	Width	Elev
1	638	1	646.5

Downstream num= 2

Width	Elev	Width	Elev
1	638	1	646.5

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Energy Only

Additional Bridge Parameters
Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Silver Creek
REACH: Main RS: 2.3

INPUT
Description: Surveyed Cross-Section, DS FACE RR SPUR SOUTH OF TOLLWAY
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
25	646	29	645	33.1	644.67	48.3	643.93	56.2	639.43
58.9	638.89	72.3	638.76	80.6	638.78	82.5	639.48	91.5	646.34
108	644.51	113.6	646.91	144.4	647.25				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
25	.05	29	.035	91.5	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
29	91.5	147	117	117	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
25	33	647.89	F
84	144.4	647.89	F

CROSS SECTION

RIVER: Silver Creek
REACH: Main RS: 2.2

INPUT
Description: Cross-Section from 1 ft. aerial topogrpahy, channel invert
interpolated between surveyed x-sections
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	647	2.5	646	5.5	645	18	644	82.5	643
120.5	643	123	642	125	641	127	640	137	638.25
147	640	149	641	151	642	161	643	174	644
179	645	182.5	646	185.5	647				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	120.5	.035	161	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
120.5	161	167	157	157	.1	.3

CROSS SECTION

RIVER: Silver Creek
REACH: Main RS: 2

INPUT
Description: Surveyed Cross-Section, 2 ft. topogrpahy used to extend
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	646	7.5	644	88.2	642.43	92.3	638.8	95.1	638.06
100	637.76	105.7	638.05	108.1	639.12	114.2	642.88	142	644
159	646								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.05	88.2	.035	114.2	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
88.2	114.2	539	539	539	.1	.3

CROSS SECTION

RIVER: Silver Creek
REACH: Main RS: 1

INPUT
Description: Surveyed Cross-Section, extended using 2 ft. topogrpahy
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
100	646	231.7	644	435.9	642.49	440.8	638.73	443.4	637.7
450.5	637.45	455.7	637.56	458.1	638.6	462.5	642.04	468.2	642.48
479.9	642.49	488.1	641.9	553.5	642.37	574	644	613	646

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
100	.05	435.9	.035	468.2	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
435.9	468.2	0	0	0	.1	.3

SUMMARY OF MANNING'S N VALUES

River:Silver Creek

Reach	River Sta.	n1	n2	n3
Main	12	.05	.035	.05
Main	10	.05	.035	.05
Main	9.5	Culvert		
Main	9	.05	.035	.05
Main	8	.05	.035	.05
Main	7.5	Culvert		
Main	7	.05	.035	.05
Main	6.5	.05	.035	.05
Main	6	.05	.035	.05
Main	5.8	.05	.035	.05
Main	5.6	.05	.035	.05
Main	5.5	Bridge		
Main	5.4	.05	.035	.05
Main	5.2	.05	.035	.05
Main	5	.05	.035	.05
Main	4.5	Culvert		
Main	4	.05	.035	.05
Main	2.9	.05	.035	.05
Main	2.85	Bridge		
Main	2.8	.05	.035	.05
Main	2.6	.05	.035	.05
Main	2.4	.05	.035	.05
Main	2.35	Bridge		
Main	2.3	.05	.035	.05
Main	2.2	.05	.035	.05
Main	2	.05	.035	.05
Main	1	.05	.035	.05

SUMMARY OF REACH LENGTHS

River: Silver Creek

Reach	River Sta.	Left	Channel	Right
Main	12	915	860	800
Main	10	1800	1800	1800
Main	9.5	Culvert		
Main	9	35	35	35
Main	8	82	82	82
Main	7.5	Culvert		
Main	7	35	39	50
Main	6.5	165	165	165
Main	6	114	114	114
Main	5.8	37	37	37
Main	5.6	34	34	34
Main	5.5	Bridge		
Main	5.4	18	18	18
Main	5.2	29	29	29
Main	5	236	236	236
Main	4.5	Culvert		
Main	4	7	7	7
Main	2.9	25	25	25
Main	2.85	Bridge		
Main	2.8	80	83	85
Main	2.6	60	93	115
Main	2.4	29	29	29
Main	2.35	Bridge		
Main	2.3	147	117	117
Main	2.2	167	157	157
Main	2	539	539	539
Main	1	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Silver Creek

Reach	River Sta.	Contr.	Expan.
Main	12	.1	.3
Main	10	.1	.3
Main	9.5	Culvert	
Main	9	.3	.5
Main	8	.3	.5
Main	7.5	Culvert	
Main	7	.3	.5
Main	6.5	.1	.3
Main	6	.1	.3
Main	5.8	.1	.3
Main	5.6	.3	.5
Main	5.5	Bridge	
Main	5.4	.3	.5
Main	5.2	.1	.3
Main	5	.3	.5
Main	4.5	Culvert	
Main	4	.3	.5
Main	2.9	.3	.5
Main	2.85	Bridge	

TAB 10

SECTION 10

NATURAL CONDITIONS HYDRAULIC ANALYSIS

NATURAL CONDITIONS
HEC-RAS
(NAVD '88)

HEC-RAS Plan: Natural River: Silver Creek Reach: Main

Reach	River Sta	Profile	Cum Ch Len	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(ft)	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	1	10-YR		360.00	637.45	644.50	640.09	644.51	0.000085	1.11	658.56	384.98	0.09
Main	1	50-YR		560.00	637.45	644.80	640.86	644.82	0.000141	1.48	777.89	410.58	0.11
Main	1	100-YR		660.00	637.45	645.10	641.20	645.12	0.000138	1.52	904.89	436.18	0.11
Main	1	500-YR		880.00	637.45	645.50	641.82	645.52	0.000158	1.70	1086.21	470.33	0.12
Main	2	10-YR	539.00	355.00	637.76	644.55		644.60	0.000266	1.98	279.86	141.48	0.15
Main	2	50-YR	539.00	550.00	637.76	644.88		644.96	0.000456	2.70	327.21	145.69	0.20
Main	2	100-YR	539.00	655.00	637.76	645.17		645.27	0.000486	2.89	370.84	149.46	0.21
Main	2	500-YR	539.00	875.00	637.76	645.58		645.70	0.000601	3.35	432.67	154.64	0.23
Main	2.2	10-YR	696.00	355.00	638.25	644.60		644.64	0.000251	1.67	314.48	166.58	0.15
Main	2.2	50-YR	696.00	550.00	638.25	644.98		645.03	0.000391	2.21	377.51	173.07	0.19
Main	2.2	100-YR	696.00	655.00	638.25	645.28		645.34	0.000398	2.33	430.27	175.31	0.19
Main	2.2	500-YR	696.00	875.00	638.25	645.71		645.79	0.000461	2.66	506.71	178.12	0.21
Main	2.3	10-YR	813.00	355.00	638.76	644.63	640.64	644.69	0.000363	1.90	186.83	56.69	0.17
Main	2.3	50-YR	813.00	550.00	638.76	645.01	641.22	645.12	0.000642	2.67	206.14	66.45	0.23
Main	2.3	100-YR	813.00	655.00	638.76	645.30	641.48	645.44	0.000720	2.96	221.22	71.38	0.25
Main	2.3	500-YR	813.00	875.00	638.76	645.73	642.01	645.93	0.000943	3.60	242.72	78.40	0.29
Main	2.35		Bridge										
Main	2.4	10-YR	842.00	355.00	638.12	644.66	640.54	644.71	0.000201	1.80	210.84	135.94	0.14
Main	2.4	50-YR	842.00	550.00	638.12	645.06	641.10	645.16	0.000371	2.57	230.80	159.28	0.19
Main	2.4	100-YR	842.00	655.00	638.12	645.37	641.37	645.49	0.000437	2.88	245.96	175.20	0.21
Main	2.4	500-YR	842.00	875.00	638.12	645.81	641.89	646.00	0.000603	3.55	268.26	179.96	0.25
Main	2.6	10-YR	935.00	355.00	639.10	644.64	642.38	644.77	0.001107	2.96	125.25	315.13	0.29
Main	2.6	50-YR	935.00	550.00	639.10	645.03	643.12	645.27	0.001759	4.04	145.10	319.37	0.38
Main	2.6	100-YR	935.00	655.00	639.10	645.33	643.46	645.62	0.001861	4.38	161.04	322.81	0.39
Main	2.6	500-YR	935.00	875.00	639.10	645.76	644.10	646.16	0.002249	5.18	185.10	327.80	0.44
Main	2.8	10-YR	1018.00	355.00	638.93	644.80	641.31	644.84	0.000295	1.65	214.54	108.94	0.16
Main	2.8	50-YR	1018.00	550.00	638.93	645.31	641.84	645.39	0.000450	2.24	245.74	118.23	0.20
Main	2.8	100-YR	1018.00	655.00	638.93	645.65	642.10	645.74	0.000487	2.46	266.44	125.04	0.21
Main	2.8	500-YR	1018.00	875.00	638.93	646.19	642.56	646.33	0.000588	2.92	299.62	166.15	0.23
Main	2.85		Bridge										
Main	2.9	10-YR	1043.00	355.00	639.81	644.84	641.25	644.86	0.000117	1.27	280.47	202.04	0.10
Main	2.9	50-YR	1043.00	550.00	639.81	645.38	641.60	645.42	0.000193	1.75	313.43	207.22	0.14
Main	2.9	100-YR	1043.00	655.00	639.81	645.75	641.77	645.81	0.000217	1.95	336.13	213.25	0.15
Main	2.9	500-YR	1043.00	875.00	639.81	646.37	642.10	646.46	0.000271	2.34	374.30	236.84	0.17
Main	4	10-YR	1050.00	355.00	638.33	644.85		644.86	0.000057	1.05	585.79	161.45	0.07
Main	4	50-YR	1050.00	550.00	638.33	645.41		645.43	0.000090	1.41	677.56	166.91	0.10
Main	4	100-YR	1050.00	655.00	638.33	645.79		645.81	0.000099	1.53	742.00	170.50	0.10
Main	4	500-YR	1050.00	875.00	638.33	646.44		646.47	0.000115	1.75	852.60	170.50	0.11
Main	5	10-YR	1286.00	355.00	638.50	644.86		644.89	0.000201	1.75	276.51	78.06	0.14
Main	5	50-YR	1286.00	550.00	638.50	645.41		645.48	0.000316	2.35	320.32	78.80	0.17
Main	5	100-YR	1286.00	655.00	638.50	645.79		645.87	0.000346	2.57	350.18	78.80	0.18
Main	5	500-YR	1286.00	875.00	638.50	646.43		646.54	0.000414	3.00	400.68	78.80	0.20
Main	5.2	10-YR	1315.00	355.00	638.50	644.86		644.90	0.000298	1.60	221.68	66.24	0.15
Main	5.2	50-YR	1315.00	550.00	638.50	645.42		645.49	0.000484	2.10	261.41	74.91	0.20
Main	5.2	100-YR	1315.00	655.00	638.50	645.80		645.88	0.000526	2.25	290.96	80.24	0.21
Main	5.2	500-YR	1315.00	875.00	638.50	646.45		646.55	0.000556	2.53	351.90	116.32	0.22
Main	5.4	10-YR	1333.00	355.00	638.74	644.86	640.87	644.91	0.000285	1.80	197.53	47.73	0.15
Main	5.4	50-YR	1333.00	550.00	638.74	645.42	641.44	645.51	0.000454	2.46	223.67	50.96	0.20
Main	5.4	100-YR	1333.00	655.00	638.74	645.79	641.72	645.91	0.000499	2.71	241.37	63.50	0.21
Main	5.4	500-YR	1333.00	875.00	638.74	646.43	642.26	646.59	0.000604	3.23	271.22	91.20	0.24
Main	5.5		Bridge										
Main	5.6	10-YR	1367.00	355.00	639.29	644.88	641.64	644.96	0.000543	2.26	157.28	48.47	0.21
Main	5.6	50-YR	1367.00	550.00	639.29	645.45	642.33	645.59	0.000836	3.01	182.46	57.70	0.26
Main	5.6	100-YR	1367.00	655.00	639.29	645.83	642.64	646.00	0.000905	3.28	199.84	67.13	0.28
Main	5.6	500-YR	1367.00	875.00	639.29	646.53	643.27	646.75	0.000996	3.76	232.64	82.99	0.30
Main	5.8	10-YR	1404.00	355.00	637.80	644.91		644.98	0.000415	2.06	172.23	44.56	0.18
Main	5.8	50-YR	1404.00	550.00	637.80	645.50		645.62	0.000626	2.77	200.58	52.50	0.23
Main	5.8	100-YR	1404.00	655.00	637.80	645.89		646.03	0.000668	3.02	221.98	58.30	0.24
Main	5.8	500-YR	1404.00	875.00	637.80	646.60		646.78	0.000733	3.47	270.78	80.12	0.26
Main	6	10-YR	1518.00	355.00	637.13	644.95		645.02	0.000394	2.13	166.75	37.70	0.18
Main	6	50-YR	1518.00	550.00	637.13	645.57		645.70	0.000668	2.88	190.73	40.67	0.23
Main	6	100-YR	1518.00	655.00	637.13	645.96		646.11	0.000765	3.16	207.02	42.56	0.25
Main	6	500-YR	1518.00	875.00	637.13	646.68		646.88	0.000891	3.66	244.04	60.97	0.28
Main	6.5	10-YR	1683.00	355.00	638.30	645.02		645.09	0.000389	2.36	184.59	54.13	0.19
Main	6.5	50-YR	1683.00	550.00	638.30	645.67		645.80	0.000584	3.14	221.73	59.68	0.23
Main	6.5	100-YR	1683.00	655.00	638.30	646.07		646.23	0.000631	3.42	246.70	62.98	0.25

HEC-RAS Plan: Natural River: Silver Creek Reach: Main (Continued)

Reach	River Sta	Profile	Cum Ch Len	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(ft)	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	6.5	500-YR	1683.00	875.00	638.30	646.82		647.02	0.000707	3.91	295.52	67.84	0.26
Main	7	10-YR	1722.00	310.00	638.49	645.03	640.43	645.10	0.000222	2.19	141.64	47.98	0.15
Main	7	50-YR	1722.00	490.00	638.49	645.68	641.08	645.83	0.000403	3.14	155.87	52.01	0.21
Main	7	100-YR	1722.00	585.00	638.49	646.07	641.39	646.27	0.000479	3.55	164.65	54.50	0.23
Main	7	500-YR	1722.00	790.00	638.49	646.94	642.01	647.06	0.000406	2.81	309.74	66.20	0.19
Main	7.5		Culvert										
Main	8	10-YR	1804.00	310.00	638.20	645.12	640.73	645.20	0.000254	2.26	137.03	44.10	0.16
Main	8	50-YR	1804.00	490.00	638.20	645.95	641.38	646.10	0.000420	3.16	155.20	45.53	0.21
Main	8	100-YR	1804.00	585.00	638.20	646.49	641.70	646.68	0.000467	3.50	167.17	46.48	0.22
Main	8	500-YR	1804.00	790.00	638.20	647.85	642.32	647.93	0.000184	2.41	360.46	46.50	0.14
Main	9	10-YR	1839.00	310.00	639.28	645.16	640.91	645.21	0.000185	1.85	167.56	43.89	0.14
Main	9	50-YR	1839.00	490.00	639.28	646.03	641.45	646.13	0.000290	2.54	192.70	46.18	0.17
Main	9	100-YR	1839.00	585.00	639.28	646.59	641.71	646.71	0.000315	2.80	209.06	47.68	0.18
Main	9	500-YR	1839.00	790.00	639.28	647.82	642.23	647.98	0.000340	3.23	244.64	51.24	0.20
Main	9.5		Culvert										
Main	10	10-YR	3639.00	310.00	640.94	646.00	642.58	646.07	0.000283	2.05	151.34	51.28	0.16
Main	10	50-YR	3639.00	490.00	640.94	648.22	643.10	648.30	0.000203	2.23	220.02	65.76	0.15
Main	10	100-YR	3639.00	585.00	640.94	649.75	643.35	649.82	0.000151	2.19	267.50	100.54	0.13
Main	10	500-YR	3639.00	790.00	640.94	651.56	643.84	651.60	0.000072	1.69	650.15	117.03	0.09
Main	12	10-YR	4499.00	300.00	640.14	646.37		646.52	0.001090	3.04	98.74	27.71	0.28
Main	12	50-YR	4499.00	485.00	640.14	648.48		648.61	0.000719	2.93	165.76	35.97	0.24
Main	12	100-YR	4499.00	570.00	640.14	649.93		650.03	0.000405	2.57	230.68	61.74	0.19
Main	12	500-YR	4499.00	775.00	640.14	651.63		651.73	0.000279	2.53	373.16	98.73	0.16

TAB 11

SECTION 11

PROPOSED CONDITIONS HYDRAULIC ANALYSIS

NO PROPOSED CONDITIONS MODELING

CROSSING WILL NOT BE ALTERED AS PART OF THE EOWB PROJECT

TAB 12

SECTION 12

IDNR-OWR FLOODWAY PERMIT SUMMARY AND COMPENSATORY STORAGE SUMMARY

Illinois Department of Transportation

Permit Summary for Floodway Construction in Northeast Illinois

Applicant Agency:	Illinois Department of Transportation	County:	Cook
Route:	Elgin O'Hare-West Bypass	Stream:	Silver Creek
Section:	I-294 over Silver Creek	SN:	016-2746 / Tollway 289C

General Description (bridge length, bridge width, number of spans, abutment type, proposed scope of work within floodway, etc.):
Existing Facility: 220 ft, twin 12' W x 8' H reinforced concrete box culverts
Proposed Improvement: **No work is proposed.**

1. Is the proposed work classified as repairs such as deck replacement, pavement resurfacing, or the armoring or filling of a scour hole? ☐ Yes ☒ No

2. Does the proposed work only consist of modifications to the existing structure which will occur above the regulatory 100-year flood profile? ☐ Yes ☐ No

Note: If the answer to question 1 or 2 is yes, no permit is required and questions 3 through 12 may be omitted.

3. Does the proposed work below the regulatory 100-year flood profile consist of widening of the existing structure by 12 feet or less? ☐ Yes ☐ No

Note: If yes, Regional Permit No. 2 applies and questions 4 through 9 may be omitted.

4. Is the proposed improvement, including the approach roadway, more restrictive to normal and flood flows than the existing structure? ☐ Yes ☐ No

5. Is a Channel Modification proposed? ☐ Yes ☐ No

6. Are there any buildings or structures located upstream in the 100-year floodplain within the influence of the structure backwater? ☐ Yes ☒ No

6a. If no, does the backwater of the proposed improvement exceed the backwater of the existing structure by more than 0.1 foot? ☐ Yes ☐ No

6b. If yes, does the proposed backwater exceed the natural high water elevation by more than 0.1 foot? ☐ Yes ☐ No

7. Are transitions required for this project? ☐ Yes ☐ No

8. Is the flood profile at the project site impacted by backwater from a downstream receiving stream? ☐ Yes ☒ No

If yes, list frequency of starting elevation for analysis:

9. Is backwater from a downstream structure affecting the flood profile at the project site? ☐ Yes ☒ No

9a. Was the existing downstream structure used in the analysis for determining flood profile at the project site? years? (Attach documentation) ☐ Yes ☐ No

9b. Is the downstream structure scheduled for improvement in the next 5 ☐ Yes ☐ No

9c. Was the proposed downstream improvement used in the analysis? ☐ Yes ☐ No

10. Is a floodway map change required due to the proposed project? ☐ Yes ☐ No

11. Will fill or material be placed in the floodway due to the proposed work? ☐ Yes ☐ No

11a. If yes, is compensatory storage provided at the project location? (Attach a copy of completed Attachment A) ☐ Yes ☐ No

11b. If the answer to 11a is no, is compensatory storage provided at another location? If yes, give location and attach a copy of completed Attachment A. ☐ Yes ☐ No

11c. Has compensatory storage relief been granted? (Attach Documentation) ☐ Yes ☐ No

12. Coordination based on Memorandum of Agreement has occurred with Agency(ies) (Attach documentation):. ☐ Yes ☐ No

---

All engineering analysis has been performed by me or under my direct supervision.

Signature: DJ C [signature] IL/P.E. #: 062-059516

Date: 10/1/12 P.E. Expiration Date: 11/30/2013

062-059516 LICENSED PROFESSIONAL ENGINEER OF ILLINOIS

FOR DEPARTMENTAL USE ONLY

Is a permit required for this project? ☐ Yes ☐ No

If yes, specify type of permit: ☐ Floodway, ☐ Regional 1, ☐ Regional 2

Permit Summary
(Attachment A - Compensatory Storage)

Part of Permit Summary for Floodway Construction in Northeast Illinois:

☒ Phase I (Preliminary) ☐ Phase II (Final)

Applicant Agency:	IDOT	County:	Cook
Route:	Interstate 294	Stream:	Silver Creek
Section:	20	SN:	IDOT 016-2746 / Tollway 289C

Provide the following information for Item 11:

a. Flood Water Elevations (Natural): 100-year 645.79 ft. 10-year 644.86 ft.
Normal 640.60 ft.

b. Determine the amount of fill or material being placed in the floodway:

1. Between the 100-year and 10-year flood elevation 0 cu. yds.
2. Between the 10-year and normal water elevation 0 cu. yds.

c. Determine the volume being provided to compensate for above item b:
(i.e. from structures removal, excavation, etc.)

1. Between the 100-year and 10-year flood elevation 0 cu. yds.
2. Between the 10-year and normal water elevation 0 cu. yds.

d. Mark on the exhibits the location and amount of compensatory storage to be excavated. Also show the location of floodway and floodplain boundaries. (Include a set of plans and cross sections)

Attach copy of calculations and Exhibit(s) reflecting the above finding.

All engineering analysis has been performed by me or under my direct supervision.

Signature: _____ IL/P.E. #: 062-059516

Date: 10/1/12 P.E. Expiration Date: 11/30/2013

062-059516
LICENSED
PROFESSIONAL
ENGINEER
OF
ILLINOIS

TAB 13

SECTION 13

CORRESPONDENCE AND NOTES

STA 2137+00
118 110 L.F. 15" PIPE CULVERT.
B.C.C.M.P.(16 GA.)
1- 15" END SECTION
2- 22½° 30 BENDS
1- TYPE D-2 INLET

STA. 2140+70
208 L.F. 12'6"x8' BOX CULVERT-DOUBLE

STA. 2142+00
368 L.F. 15" PIPE CULVERT,
M.C.C.M.P.(16 GA.)
1- 15" END SECTION
2- 75°30 BENDS
6- TYPE D 3 INLETS
4- 15"x 8" C.M.P. STEP
1- 15" B.C.M.P. STEP
SEE SHEET NO 14 FOR DETAIL

SEE DWG. NO. FOR DETAILS
STRUCTURE NO T 7-11

Right of Way Line — 1015 L.F. TYPE 1 R/W FENCE — 11-T7-UN Great Lakes Pipe Line Co.

3 UNDERGROUND PIPE-LINES
1-8" GAS
1-6" OIL

20 L.F. TYPE 1 R/W FENCE

INV. 658.61

30 L.F. TYPE 1 R/W FENCE

NOTE:
SEE SHEET 14 FOR PAVING TRANSITION DATA

315 L.F. TYPE 1 R/W FENCE

1005 L.F. STEEL PLATE BEAM GUARD RAIL (12 GA.)

Match Line Sta. 2130+00 — Match Line Sta. 2144+00

125.00'

Pvt. Edges

3 ℄ Toll Highway - 14

INV. 658.39

PERMANENT MONUMENT

INV. 665.70
GR. 670.72

INV. 665.70
GR. 672.32

INV. 665.20
GR. 669.62

INV. 666.68
GR. 672.30

INV. 666.19
GR. 671.37

INV. 666.68
GR. 672.24

1400 L.F. STEEL PLATE BEAM GUARD RAIL (12 GA.)

SIDE DITCH - 2' BOTTOM (SEEDED)

T-7-10

INV. 642.12

INV. 639.39

15 L.F. TYPE 1 R/W FENCE

TYPE A GATE

TYPE C GATE

25 L.F. TYPE 1 R/W FENCE

TYPE A GATE

SIDE DITCH - 2' BOTTOM (SEEDED)

270 L.F.

INV. 642.20

TYPE 1 R/W FENCE

STA. 2142+50
125' Rt. of ℄

1035 L.F. TYPE 1 R/W FENCE

Right of Way Line

PAVED

LIMITS OF MEDIAN DITCH SODDING
STA. 2130+00 TO STA. 2141+00

STA 2130+00 TO STA. 2135+20
REMOVE 0.8' TOPSOIL
IN VICINITY OF STA. 2141+00
REMOVE UNSUITABLE MATERIAL
AS DIRECTED BY ENGINEER

B.M. N-1
SPK CUT ON E. END OF S. HEADWALL CULVERT
330' FT. LEFT OF E R/W @ STA. 2140+00
ELEV. 666.698

B.M. N-2
SPK CUT ON CONC. FENCE POST
185.5 FT. RIGHT OF E R/W @ STA. 2141+28
ELEV. 643.592

2000' V.C.

EL. 644.38

EL. 642.72

PVT. STA. 2135+27
EL. 642.72

+1.38% PROFILE GRADE LINE

+1.35%

MEDIAN GRADE +1.76%

EL. 642.69

STRUCTURE NO T 7-11

EXISTING GROUND LINE

RIGHT SIDE DITCH -0.25%

RIGHT SIDE DITCH +6.10%

641.27

A=1.20

DATUM 620

2130	+50	1	+50	2	+50	3	+50	4	+50	2135	+50	+02	+50	7	+50	8	+50	9	+50	2140	+50	1	+50	2	+50	2143
G-641.51		J-at 18		G-641.39 G-656.39		G-637.04		G-648.70 G-657.53		G-658.04		G-654.54 G-653.56		G-659.10		650.2 G-659.58		G-650.28		G-649.45 G-650.89		G-661.53		G-662.16 G-662.16 G-662.20		G-662.88		G-663.55		G-664.22		G-664.90		G-665.38		G-665.25 G-666.25		G-666.92		G-667.60		G-668.28		G-642.6 G-668.95		G-668.63		G-670.30		G-670.98		G-643.8 G-671.65

ELEVATION	
670	
660	
650	
640	
630	
620	

PROFILE	
SURVEYED	
PLOTTED	
DRAWN	
TRACED	
CHECKED	
QUANTITIES CHECKED	
B.M.'s NOTED	
STRUCTURE NOTATIONS CHKD.	
SHEET NO.	3

PLAN	
SURVEYED	
PLOTTED	
DRAWN	
TRACED	
CHECKED	
QUANTITIES CHECKED	
NOTE BOOK	
SHEET NO.	4

SUMMARY — SHEET 25 OF 59

FINAL	ITEM NO.	DESCRIPTION	UNIT	QUANTITY
		Roadway		
1,154	1	Mowing & Brushing	L.S.	231
	2	Roadway Exc. Unclassified	C.Y.	1,667
	3	Borrow, Exc.	C.Y.	
3.61	4	Top Soil Spreading	Acres	4.13
4.13	5	Seeding	Acres	4.13
	6	Lime	Tons	6.3
8.26	7	Fertilizer	Tons	1.13
3.21	8	Mulch Covering	Acres	4.13
	9	Sodding	S.Y.	
566	10	Supplemental watering	M Gal.	1,665 / 7.5
		Drainage		
0	23	15" B.C.M.P. R.C.P. or S.C.S.M.P. (16 GA.)	L.F.	418
2	37	End Sections 15"	Each	2
1	42	Inlets, Type D-2	Each	1
2	43	Inlets, Type D-3	Each	2
4.85	90	Ditch Paving, 4"	Sq. Yds.	35
435.8	22	15" Pipe Culvert, B.C.M.P. or R.C.P.	L.F.	
5	140	15" B.C.M.P. "T" Ties	Each	
1	141	16" B.C.M.P. "Tee"	Each	
		Pavement		
5436	34	Select Soil Subgrade	Sq. Yds.	5056
2760	50	Granular Subbase	C.Y.	1800
4944	51	10 Sack C.C. Pave.	Sq. Yds.	5736
1511	52	3" Surf. Conc. Shoulders	Sq. Yds.	4452
	54	Bitum. Mat'l's (Prime Coat)	Gals.	
		Roadway Appurtenances		
3	72	R/W Markers	Each	3
1	73	Monuments	Each	1
125	76	Median Curb (6"x8")	L.F.	125
		Structures		
1935	33	Struc. Exc., Common	C.Y.	810
1935	33A	C.M. Conc. for Box Culverts	C.Y.	1,100
35,000	35	Class "A" Steel	Lbs.	172,000
4	35	Spl. Fill		270
1.0	98	Structural Steel Misc.	Lbs.	

REVISIONS	
△ 5/14/58	

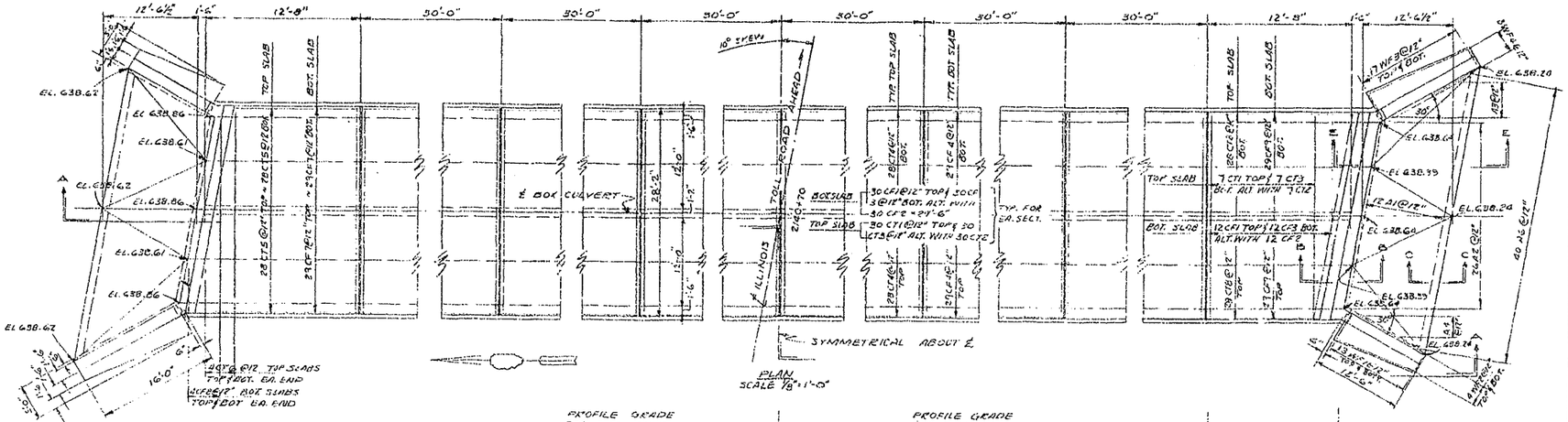
ILLINOIS STATE TOLL HIGHWAY COMMISSION
NORTHERN ILLINOIS TOLL HIGHWAY

TRI-STATE ROUTE
PLAN & PROFILE
STA. 2130+00 TO STA. 2144+00

Scale: Horiz. 1"=50' Vert. 1"=5' Ogee

CONTRACT T — 7A

NAESS and MURPHY & BEISWENGER and HOGH
Section Engineer
CHICAGO, ILLINOIS AKRON, OHIO



BAR SCHEDULE

TYPE 1 · TYPE 2 · TYPE 3 · TYPE 4 · TYPE 5 · TYPE 6

BENT

MARK	SIZE	NO	TYPE	LGTH	A	B	C	D	E	F	G	L
CT2	8	19A	2	33'-4"	1'-10"	3'-0"	1'-6"	6'-0"	5'-2"	1'-2"	1'-8"	27'-10"
CF8	9	20A	7	33'-4"	1'-3"	3'-6"	11'-9"	5'-10"	5'-2"	1'-8"	1'-3"	28'-10"
CF5	5	83		31'-5"	6"	27'-11"						
CF6	7	81	1	40'-0"	6"	3'-6"						
A2	4	8C	2	7'-6"	2'-0"	2'-0"	8"	2'-6"				
WF5	5	80	1	3'-6"	3'-0"	6"						
WW11	8	44	6	2'-0"	6"	1'-6"	9"	1'-8"				
CT8	4	58	5	6'-8"	4"	1'-0"	1'-0"	2'-6"	4"			

STRAIGHT

MARK	SIZE	NO	LENGTH	MARK	SIZE	NO	LENGTH
CT1	11	19A	27'-10"	WF2	5	16	12'-2"
CT3	11	19A	27'-10"	WF3	5	68	2'-6" TO 9'-6" EA. 1/2"
CF4	5	83C	31'-5"	WF5	5	16	15'-8"
CT5	8	56	9'-10" TO 14'-4" EA. 2"	A1	5	24	20'-0" TO 34'-4" VAR. 1'-2"
CT6	6	16	5'-6" TO 22'-10" EA. 2"	A2	5	52	11'-0"
"	6	108	9'-4"	A3	5	16	2'-6" TO 16'-1" VAR. 6"
"	7	40B	9'-4"	A4	5	6	2'-6" TO 10'-0" EA. 2'-0"
"	5	80	9'-4"	A5	5	6	40'-0"
"	5	28B	31'-6"	WW1	5	16	15'-0"
CW5	5	16	12'-4"	WW2	5	16	11'-6"
CW6	5	16	12'-10"	WW3	5	12	2'-11" TO 5'-4" VAR. 2'-1"
CW7	5	16	12'-6"	WW4	5	12	3'-3" TO 4'-8" VAR. 1'-2"
CW8	5	16	13'-5"	WW5	5	12	2'-7" TO 6'-3" VAR. 2'-0"
CW9	5	16	10'-10"	WW6	5	12	2'-8" TO 5'-11" VAR. 1'-3"
CW10	7	16	15'-0"	WW7	5	24	2'-8" TO 5'-11" VAR. 1'-3"
CF1	5	20A	28'-10"	WW8	5	32	2'-8" TO 9'-11" VAR. 2'-1"
CF3	11	20A	28'-10"	WW9	5	32	2'-8" TO 8'-1" VAR. 6"
CF7	5	24B	31'-6"	WW10	5	26	2'-8" TO 8'-1" VAR. 1'-1"
CT7	8	8	22'-0"	WW11	5	4	9'-10"
CT8	56	5	11'-2" TO 15'-10" EA. 2"	WW12	5	4	10'-8"
CF9	58	5	12'-4" TO 17'-2" VAR. 2"	WW13	4	44	11'-0"

Designed By	
Drawn By	Smith
Checked	

ILLINOIS STATE TOLL HIGHWAY COMMISSION
NORTHERN ILLINOIS TOLL HIGHWAY

TRI-STATE ROUTE

STRUCTURE NO. T7-11
BENSENVILLE DITCH
STATION 2140+70
BOX CULVERT

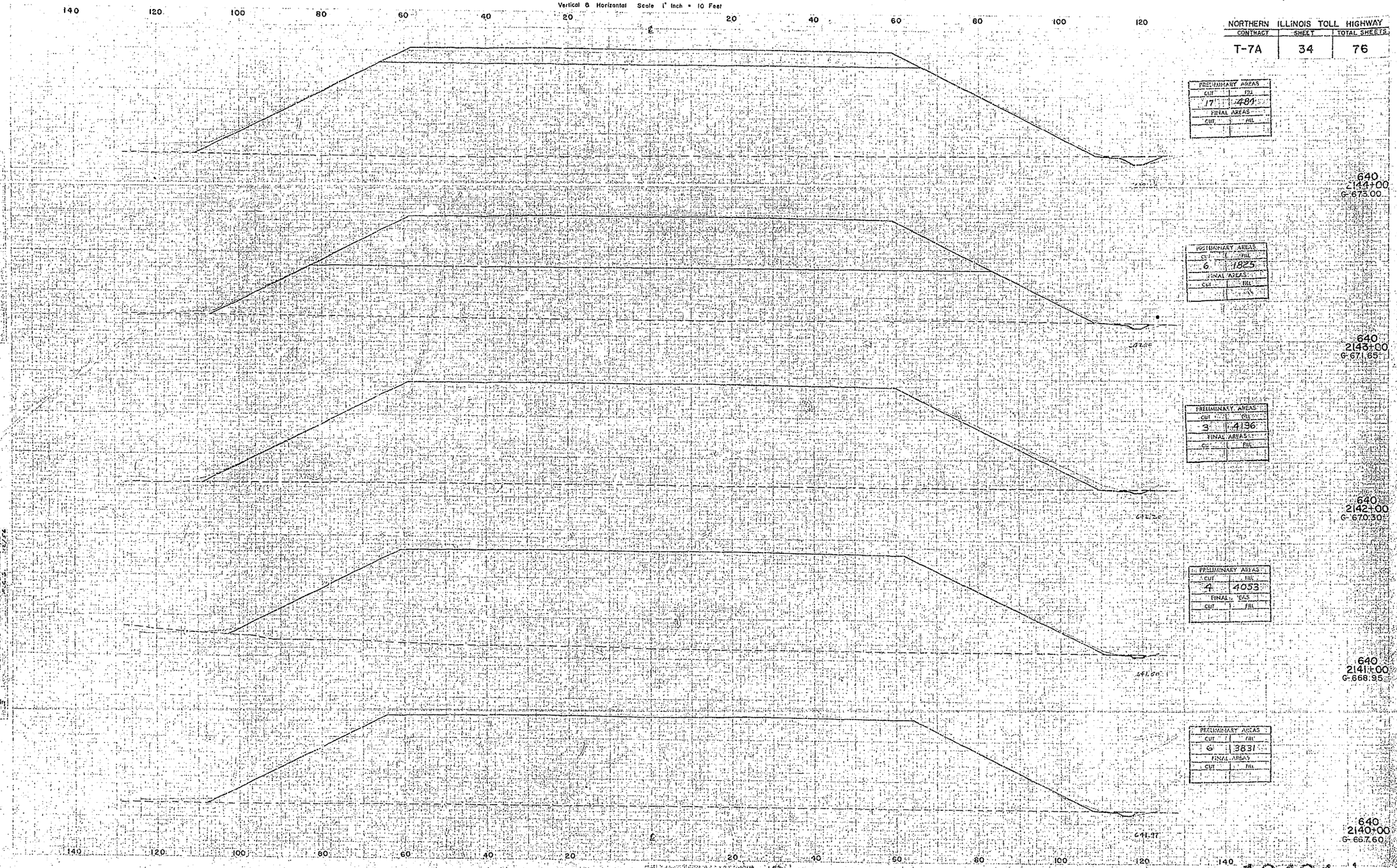
CONTRACT T-7A

NAESS and MURPHY & BEISWENGER and HOCH
Section Engineer
CHICAGO, ILLINOIS AKRON, OHIO

REVISIONS	SCALE As Noted	SHEET 1 of 1	DWG. NO. T-7-11
	DATE		

Vertical & Horizontal Scale 1" Inch = 10 Feet

NORTHERN ILLINOIS TOLL HIGHWAY		
CONTRACT	SHEET	TOTAL SHEETS
T-7A	34	76



PRELIMINARY AREAS	
CUT	FILL
17	481
FINAL AREAS	
CUT	FILL

640
2144+00
G-675.00

PRELIMINARY AREAS	
CUT	FILL
6	1825
FINAL AREAS	
CUT	FILL

640
2143+00
G-671.65

PRELIMINARY AREAS	
CUT	FILL
3	4136
FINAL AREAS	
CUT	FILL

640
2142+00
G-670.30

PRELIMINARY AREAS	
CUT	FILL
9	4053
FINAL AREAS	
CUT	FILL

640
2141+00
G-668.95

PRELIMINARY AREAS	
CUT	FILL
6	3831
FINAL AREAS	
CUT	FILL

640
2140+00
G-667.60

10431

TAB 14

SECTION 14

SURVEY NOTES

630-372-8382 Urban Gutierrez

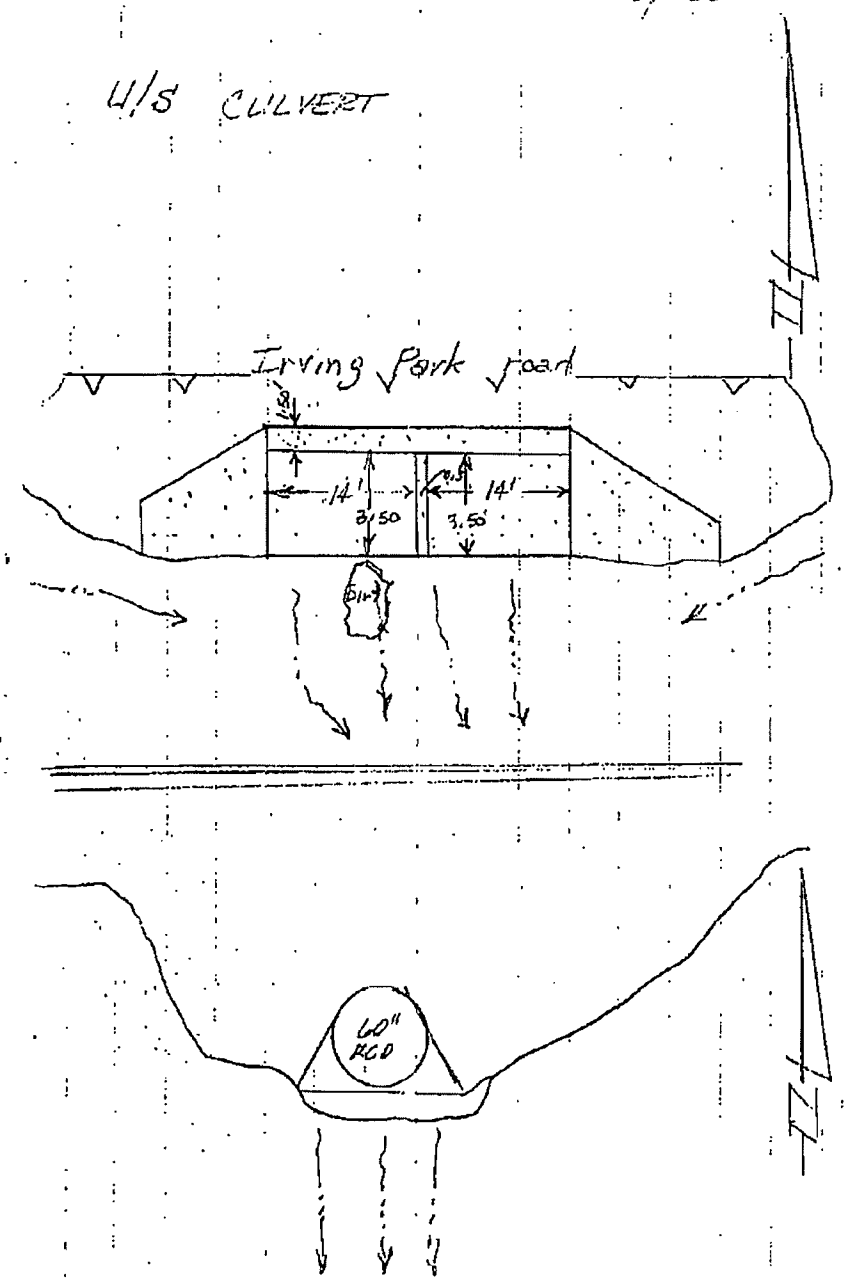
Jun 22 10 06:05p

SILVER Creek X-sect.
South of Irving Park Rd

June 21, 2010 24
UG & JG
CLOUDY 80°

File : SILVERCK_UG62110

Box culvert @ Irving Park Rd. U/S
USE GPS for topo shots
Points # 1000 – 1047



60" Flared end section U/S
USED GPS for topo shots.
Points # 1048 – 1059

File: SilverCk_UG62110

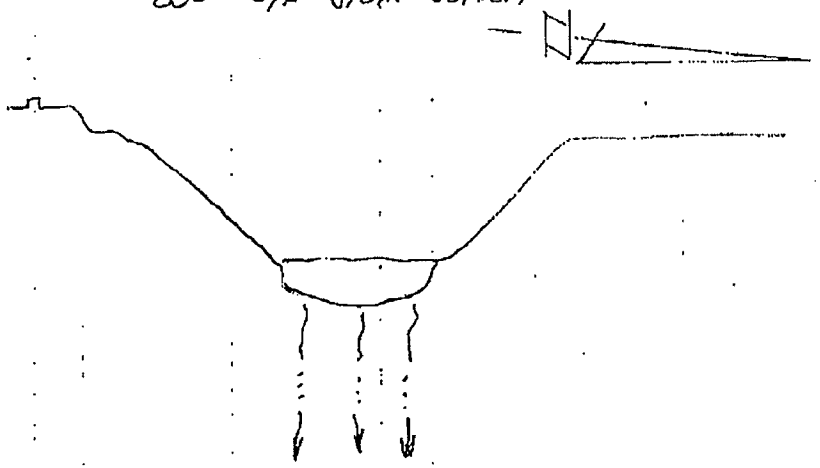
USED GPS for topo shots
on X-SECT 850' U/S of culvert

POINTS #1060 – 1078

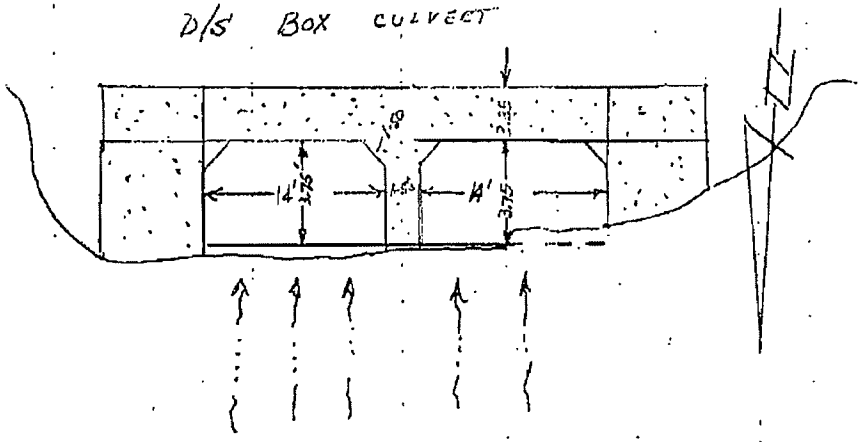
USED GPS for topo shots on
Box culvert @ 5'ly bend to creek

POINTS #1079 – 1119

850' U/S from culvert

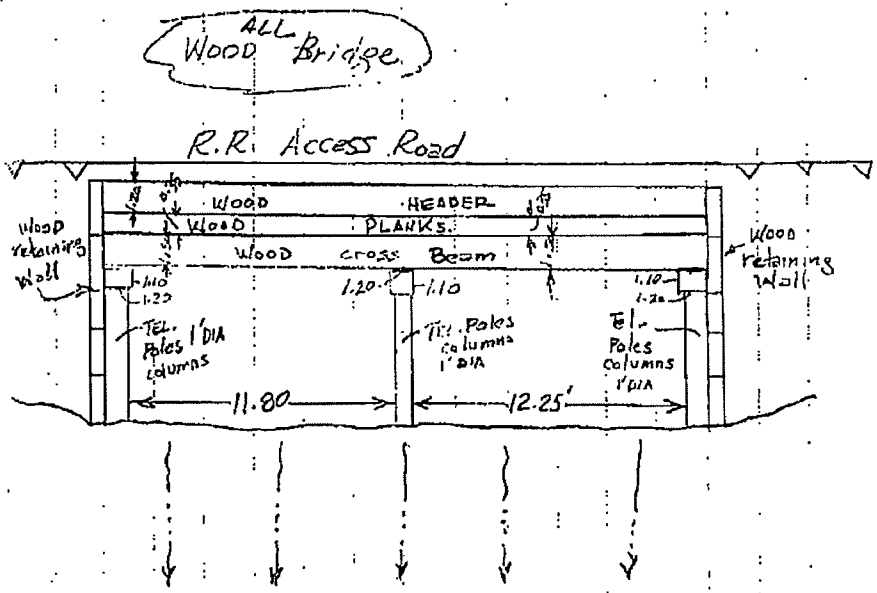


D/S BOX CULVECT



file: Silver Ck_UG 62110

X-SECT #7 Wood Bridge on R.R.
YARD access road for trucks
USED GPS for topo shots
POINTS #1120 - 1156



Jun 22 10 06:04p Urban Gutierrez 630-372-8382 p.3

June 22, 2010
UG & JG
SUNNY 88°

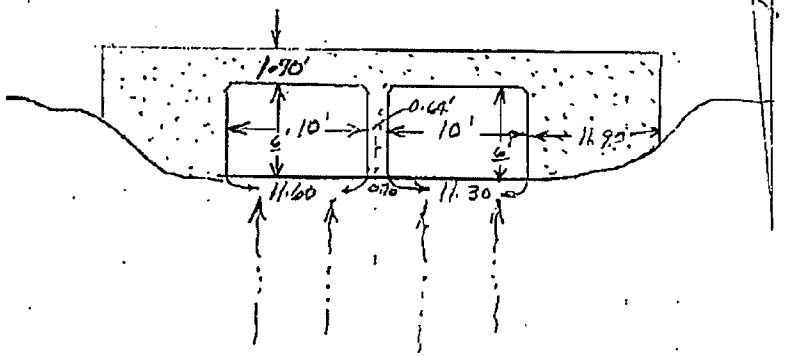
File : Silver Ck_UG 62110

Culvert D/S on Franklin Ave North side.

USED GPS for topo shots

Point # 1157 - 1188

D/S Box culvert over Franklin Ave.

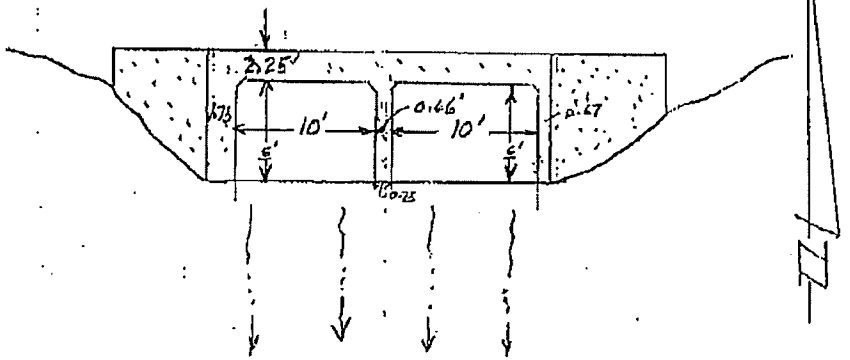


Culvert U/S on Franklin Ave South side

USED GPS for topo shots

Points # 1189 - 1241

U/S Box Culvert over FRANKLIN Ave.



p.2 630-372-8382 Urban Gutierrez Jun 22 10 06:04p

630-372-8382

Urban Gutierrez

File : Silver Ck - UG 62110

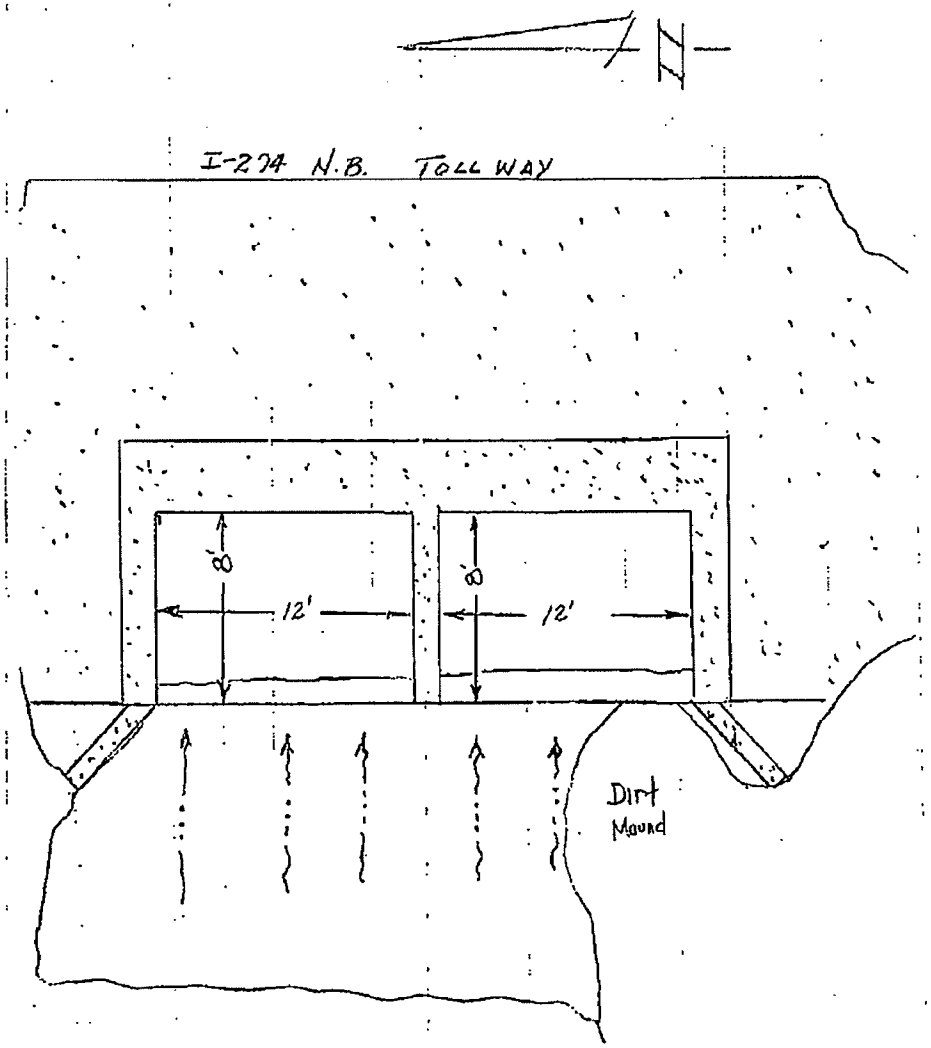
SET VIP's # 1242-43

TC @ POINT # 1242 (103 809) H.I. = 5.15
N 1921329.999
E 1103506.965
ELEV. = 647.842

BS @ POINT # 1243 (103 824) Rod Ht. = 6.00
N 1921366.954
E 1103581.962
ELEV. = 647.559

POINTS # 1244 – 1283

UG & SG
SUNNY 88°



630-372-8382

Silver Creek Box Culvert SE'ly side I-294

file: SilverCK-UG 7011.0

July 01, 2010 84
UG & JG
SUNNY 70°

SET WP's # 1284 & 85

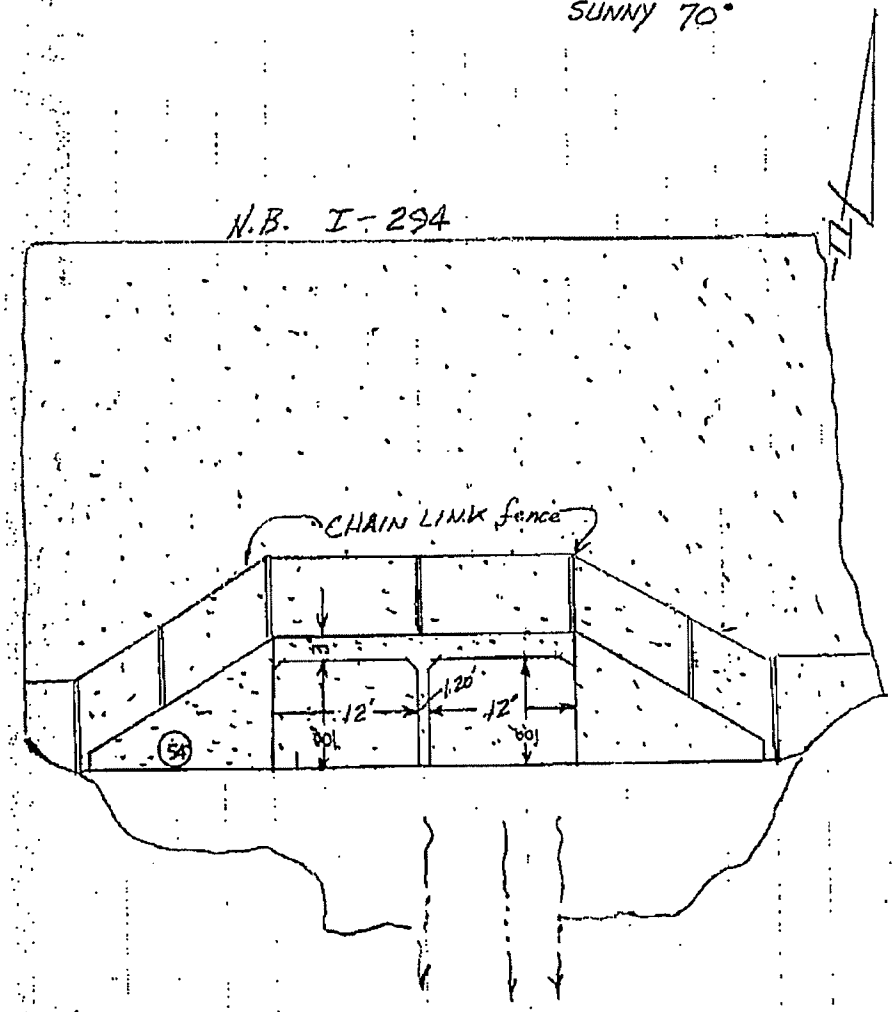
T @ WP # 1285 (105 760) H.I.=
N 1921023.507
E 1103518.546
ELEV. = 647.427

BS @ WP # 1284 (105 824) Rod Rt.=4.97
N 1921051.339
E 1103603.805
ELEV. = 646.629

POINTS # 1286 - 1316

USED GPS for stream x-sec.

POINTS # 1317 - 1335



11 - 22 - 10

BC KING

PLAIN O'HARE

SILVER CREEK

FLOODPLAIN CROSS SECTION AND

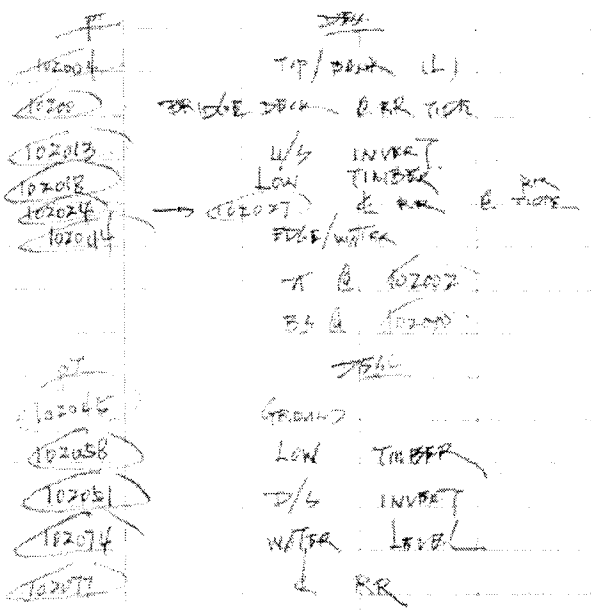
DETAILED STRUCTURE SURVEY

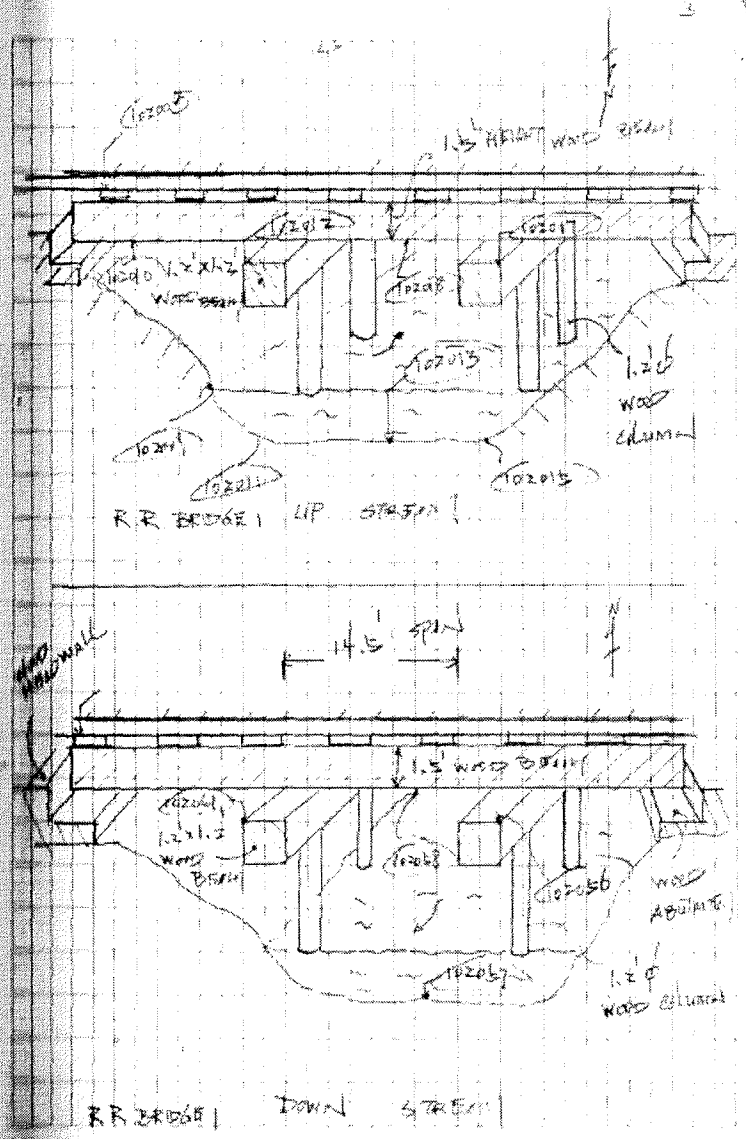
FRANKLIN AVE

INSTRUMENT FILE: SILVERCREEK.XSEC

@ 102003 WP 101

@ 102010 WP 102





11-23-10

EC, KIKO

SILVER CREEK X-SEC

CONT FILE: SILVERCREEK XSEC.3.C

X 8 (102078) WP NA

ZSB (102079) WP NA

DT

(102282) (CREEK)

(102288) FL B (LOW BOTTOM)

(102241) WOOD ABUTMENT

6

I-294

7'

(102246) (102240)

2.5'

(102252)

12'

1.5 WOOD CAP

(102245) (102242)

(102237)

5'x4'x4'

FULL OF SILT

(102247) (102244) (102243) (102241) INVERT

@ CREEK FLOW

I-294 TWIN STONE 3X CULVERT

TWIN BOX 12' x 8.2' BOX

11-23-10

BG, KIKO

SILVER CREEK X-SECS

CAST - FILE: SILVER CREEK XSECS.CS

T @ 102078 WP NAIL

B @ 102071 WP NAIL

PT

102161 102162 102163 SET WP NAIL

T @ 102162 WP NAIL

B @ 102161 WP NAIL

PT

102164 SET WP NAIL

102165 RR @ BRIDGE ABANDONED NO RAILROAD

102173 WOODEN HEAD WALL

102174 RAILING WOOD POST W/WIRE

102175 1.2' x 1.1' WOOD BEAM

102210 CANAL - DEEP DITCH

102216 WATER SURFACE

102241 - 102239 CONCRETE WALL 1.5 WIDE

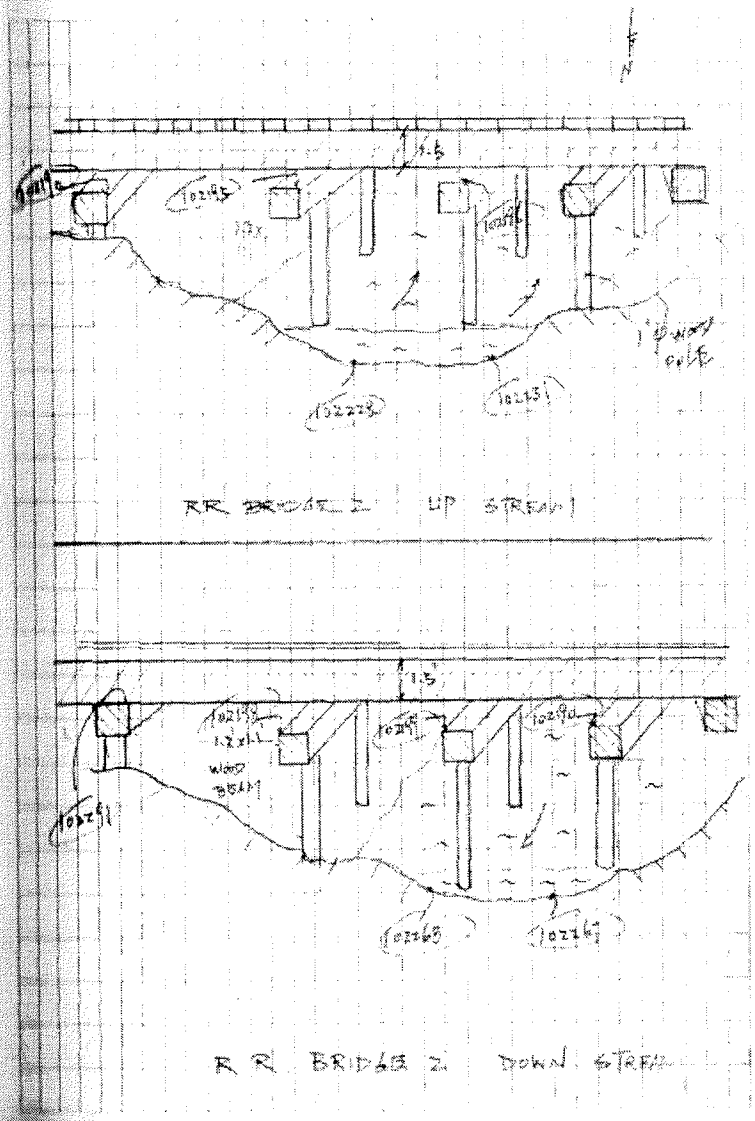
102244 102246 BOX CULVERT - INVERT

102242 BOX CULVERT ROOF 12' x 9.2

102261 54" RCP PIPE

102264 CORRUGATED PIPE

102282 GROUND



11-22-10

BK, KIKO

CONT - BLM: SILVER CREEK X154 TRK

RR BRIDGE 3 UP STREAM

RR BRIDGE 3 DOWN STREAM

TAB 15

SECTION 15

CD (MODELING & SURVEY DATA)

C
D